The Magazine of Washington University in St. Louis
APRIL 2023

Washington

APRIL 2023 | Vol. 94, No. 1

Washington Magazine

Reshoring drug production

The COVID-19 pandemic opened our eyes to the fragility of our pharmaceutical supply chain. Research out of Olin Business School provides a path forward to secure it, pg. 10.

Bringing her folding chair to the table

Alumna Nisha Patel's mission is to help families with low income have a voice and achieve upward mobility, pg. 44.

Taking tolerance on the road

Alumni Sandy and Karen Teplitzky are committed to fighting hate through the Mobile Museum of Tolerance, pg. 48.

APRIL 2023
VOL. 94, NO. 1

Contents

"The moment between the horn blowing to start a race and a swimmer hitting the water is a blur. I tell them, 'Focus on the breakout into your first stroke, and get out in your race with confidence. Trust your training, and let your instincts carry you forward. Be ready to compete. Battle on!'"

– SWIMMING AND DIVING COACH BRAD SHIVELY, ON HOW HE COACHES THE START OF A RACE

On the cover: WashU researchers are tracking the rise of populist rhetoric and its effects on democracies around the world. (Illustration: Max Temescu, BFA '13)

This spread: Members of the WashU women's swim team dive into Millstone Pool Jan. 14 in a meet against the University of Missouri–St. Louis — one of the first athletic events of the spring semester. (Photo: Danny Reise)

DEPARTMENTS

IN EVERY ISSUE

FEATURES

EDITOR
Terri Nappier

SENIOR ASSOCIATE EDITORS
Claire Gauen
Leslie Gibson McCarthy

CLASS NOTES EDITOR
Carl Jacobs

SENIOR CREATIVE DIRECTOR
Tracy Collins

ART DIRECTOR
Jennifer Wessler

SENIOR GRAPHIC DESIGNERS
Monica Duwel
Kayse Larkin

PHOTOGRAPHY & VIDEO
Joe Angeles
Anne Davis Cleary
Whitney Curtis
Sherry Haines
Thomas Malkowicz
Rachel Twedt
Javier Ventura

CIRCULATION MANAGER
Galen Harrison

CONTRIBUTING WRITERS
Sara Brenes Ackerman
Jeannette Cooperman
Emma Dent
Gerry Everding
Blaire Leible Garwitz
Tricia Hendricks
Bradley L. Jolliff
Julie Kennedy
Rebecca King Pierce
Liam Otten
Sara Savat
Neil Schoenherr
Marta Wegorzewska

CONTRIBUTING ARTISTS
Andres Alonso
Dan Donovan
Sean Garcia
Devon Hill
Kevin Magee
Mary Rafferty
Danny Reise
Max Temescu
Michael Thomas

VICE CHANCELLOR, MARKETING & COMMUNICATIONS
Julie Hail Flory

ASSISTANT VICE CHANCELLOR, STRATEGIC COMMUNICATIONS & MARKETING
Jackie Schlarman

University Marketing & Communications publishes *Washington*: three print and six digital editions (magazine.wustl.edu) a year.

Photo: Michael Thomas

Cultivating authentic community

During Bear Beginnings orientation in August 2022, Chancellor Andrew Martin (center) and Anna Gonzalez (green shirt), vice chancellor for student affairs, took first-year students on a food tour of the South Grand neighborhood, because one of the best ways to build community and to get to know a community is through food.

@WashUChancellor

As chancellor, I'm fortunate to build relationships with many people who are invested in the work of Washington University: students and parents, staff and faculty, neighbors and business leaders, alumni, philanthropists and more. And it's important to me that all who care about WashU feel as if they belong to our community.

But what does it mean to belong? To me, it means that all members of our community feel that they can contribute in an authentic, rewarding way to the mission of WashU. They can bring their unique background, circumstances, strengths and priorities as they act in service of truth through the formation of leaders, the discovery of knowledge and the treatment of patients for the betterment of our region, our nation and our world.

When we admit students to WashU, we can truly see them thriving here — and not just academically. We envision healthy, rewarding journeys for all students as they discover, create and contribute. And we welcome them exactly as they are.

As part of our strategic vision, "Here and Next," and its first major initiative, Make Way: Our Student Initiative, we've listened and learned about obstacles to belonging for college students, at other institutions and here at WashU, and we aim to remove such roadblocks through a variety of innovative means.

This summer, for example, we're looking forward to welcoming some of rural Missouri's and Illinois' brightest, most promising high school juniors to the Rural Scholars Academy. At the academy, they will, at no cost to them, receive specialized support for their college application process and learn that they, too, have a place at a world-class university — hopefully ours!

The re-envisioned University College is another great example. Our continuing education division has introduced new degree and certificate programs that will smooth the path to highly relevant careers for adult learners, most of whom are balancing jobs and families, while also providing them opportunities for cultural enrichment and social and professional networking. These students, too, belong at WashU, and they are crucial to our mission.

Our work to create a greater sense of belonging for the diverse people of Washington University is our investment in the future — individual futures, to be sure, but also our collective future. Because when we cultivate a culture of authentic community, one in which individuals are celebrated for who they are and whose gifts are allowed to flourish beyond their perceived limits, we all benefit.

As you read in these pages of the exciting contributions of our community members, remember that all of them first saw themselves belonging here, with us, at WashU.

Andrew D. Martin
Chancellor

FEEDBACK

THE DECEMBER 2022 ISSUE

"... a little late reading the December issue of *Washington Magazine* (which my wife and I always find very informational and, most importantly, educational).

"I had to 'chuckle' a bit when viewing the beginning of the short article on pg. 8 about the carnivorous plants. It began with 'Watch out, Audrey.' This comment was obviously very specific to those who knew what the author was referring to.

"We named a fast-growing plant in our backyard 'Audrey' in honor of the 'aggressive' man-eating plant from *The Little Shop of Horrors* — which I believe actually began its fame as a 'B' movie from the '50s, morphed into a play and finally a movie starring Steve Martin in 1986.

"This reference was well done."

WALTER F. ZOLLER, DMD, AB '77

"It was rewarding to hear of Dr. Fred Ssewamala, as I was a student with him and knew of his motivation, from his childhood growing up in Uganda, and his dedication to his country.

"It's wonderful to see the fruits of a Brown School education through ICHAD effectively strike at poverty and improve public health."

JANN GRAY COX, PhD, MSW '99

"I read the August 2022 issue of *Washington* and was excited to read of your 2022 digital exhibit featuring prominent guest lecturers who have visited the campus over previous years. In particular, your mention of Muhammad Ali's appearance on campus in 1975 caught my eye.

"I was present on campus that day in 1975 when Muhammad Ali exited Graham Chapel to visit a waiting circle of excited students. I was a first-year law student just leaving the former Mudd Hall with my 4-year-old son, and noticing the commotion, we walked over to the edge of the student crowd. My son immediately recognized Muhammad Ali and began to shout his name loudly and repeatedly: 'Muhammad Ali, I'm talking to you!' He got Ali's attention, and Ali came over and picked him up and presented the noisy little boy to the crowd.

"I was so embarrassed when my son made a little fist and punched Ali square in his nose! But Ali was very gracious and just laughed and spoke of how he was reminded of his own little son back home.

"As Ali continued to hold my son, an unknown professional photographer took their picture. That was such a memorable moment. Unfortunately, I was never successful in determining the identity of the photographer to attain a copy of the picture. But neither my son nor I have forgotten that remarkable encounter in 1975.

"Thanks for documenting that remarkable occasion."

LORETTA MOORE, JD '78

"In reading the latest issue, I noticed a lighthearted throw-away line about one-hit wonders (Research Roundup). It references actress Mira Sorvino, who won an Oscar but never reclaimed that early critical success. But Sorvino wasn't a one-hit wonder because of pressure or fear of failure — she was blacklisted by Harvey Weinstein. I think there are many other, better examples to make the point for the story."

KATE (STOBER) TUCK, AB '03

"Mira Sorvino was blackballed and unable to find work after she refused the persistent advances of Harvey Weinstein, who threatened her career if she didn't comply. And he succeeded.

"Her lack of another Oscar has less to do with creativity and more to do with the choice she made to not be physically intimate with Weinstein. And she suffered for it, along with an inordinate number of women in the industry."

WENDI NIAD, AB '90

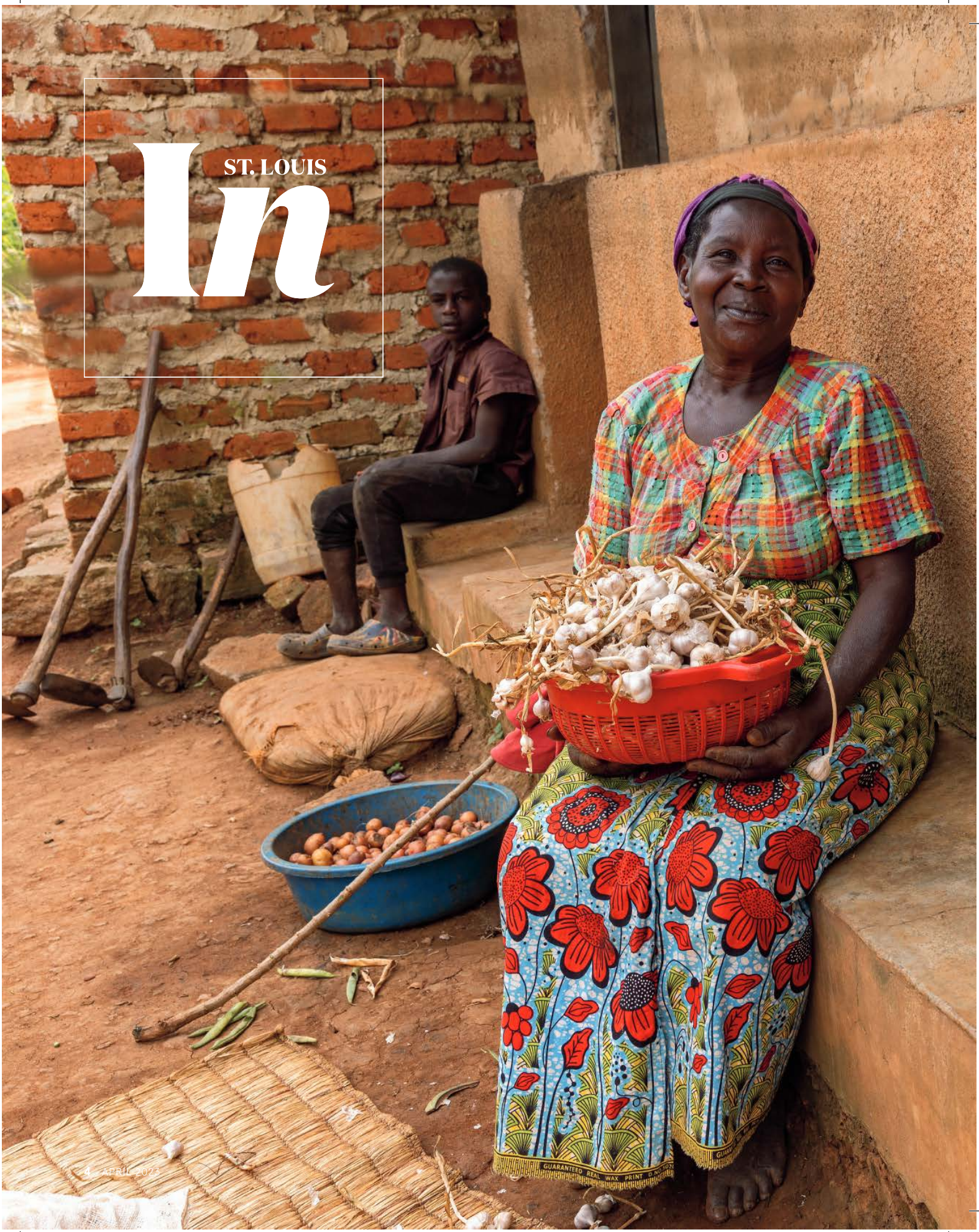
[Corrections] In the December magazine, the editors regret adding Mira Sorvino to a list of one-hit wonders in Research Roundup. The editors also regret misspelling the name of Jessi Gold, MD, MS, in Quoted and using MAUD as an abbreviation for the Master of Urban Design program instead of MUD in Coursework.

We want to hear from you!

PLEASE SEND FEEDBACK TO
Terri Nappier, Editor
Washington University in St. Louis
MSC 1070-0390-02
One Brookings Dr.
St. Louis, MO 63130-4899
EMAIL
wustlmageditor@wustl.edu

SEND ADDRESS CHANGES TO
Advancement Services
Washington University in St. Louis
MSC 1082-414-2555
7425 Forsyth Blvd.
St. Louis, MO 63105-2161
EMAIL
wuaddatachange@wusm.wustl.edu

@WUSTL WUSTL_official WUSTL youtube.com/wustlpa linkedin.com/school/washington-university-in-st-louis



In ST. LOUIS

Reducing crop damage

On the outskirts of Kibale National Park in Uganda, WashU anthropologist Krista Milich (not pictured) supports a community-led effort to keep wild animals at a safe distance from neighboring properties. Since the inception of Conservation to Coexist, farmers living near the park have been able to grow crops with fewer instances of animal interference.

Scan the code for an 'Online Exclusive' feature and video on Krista Milich's work and the Conservation to Coexist program in Uganda.

Photo: Thomas Malkowicz

Photo: James Byard

TUITION-FREE LEGAL EDUCATION

Students admitted to the School of Law for the 2023–24 academic year will benefit from new support programs. Those with family incomes less than 200% of the federal poverty level, or $55,500 for a family of four, will receive full-tuition scholarships. In addition, all admitted students will receive a scholarship designed with their challenges and goals in mind. Support may fund conferences, childcare, unpaid summer work and more.

CENTER FOR BIOMOLECULAR CONDENSATES

A first-of-its-kind, multidisciplinary center focused on biomolecular condensates — distinct molecular communities that make up the building blocks of life — has launched at the McKelvey School of Engineering. Dysregulation of condensates underlies diseases such as cancers and degenerative illnesses including ALS, Parkinson's and Alzheimer's. "This is one of the more important topics in cell biology today, and one that is attracting attention across disciplines," says director **Rohit Pappu,** the Gene K. Beare Distinguished Professor of Engineering.

THE FUTURE IS TRANSDISCIPLINARY

The Incubator for Transdisciplinary Futures (ITF) in Arts & Sciences launched last year to catalyze and support bold collaborations that foster the future of scholarly inquiry. From its first round of proposals, ITF funded nine multiyear clusters and five yearlong programmatic grants that bring together 49 faculty leads and 85 additional contributing faculty across all seven schools. The first multiyear research clusters include "Toward a Synergy Between Artificial Intelligence and Neuroscience" and "Trust and Public Health." "We are so inspired by the level of engagement with this initiative," says **William Acree,** co-director of ITF. "Most of the faculty teams had not worked together prior to our call for proposals. It is precisely the infrastructure of the incubator that is facilitating these novel connections."

A VOICE FOR VETERANS

As the new adviser at WashU's Office of Military & Veteran Services, **Beverly Wagner** is eager to help veterans and military-affiliated students maximize their university experience. Wagner served for 11 years in the U.S. Army and is currently pursuing an MBA at Olin Business School. "At Washington University, people are recognized and appreciated for who they are, not just their surface identifiers. For veterans in transition, including myself, that makes WashU a great place to be," Wagner says. "My job is to listen to all veterans and support what their needs are today."

StEP

Student Entrepreneurial Program

New student businesses focus on sustainability

Through the Student Entrepreneurial Program (StEP), supported by the Skandalaris Center for Interdisciplinary Innovation and Entrepreneurship, students run their own small businesses at storefronts on the South 40. This academic year, two new businesses join longstanding StEP offerings like SWAP (Sharing with a Purpose) that have a strong sustainability slant. Repair Unlimited reduces e-waste by providing services like screen replacement and lightning port repair. WaterDropd offers a subscription-based water delivery service, lessening the presence of single-use water containers in student housing.

MAKE WAY

The sky above Brookings Hall was lit up with drones the evening of Oct. 6 as the WashU community celebrated the launch of Make Way: Our Student Initiative. The effort aims to transform student support by raising funds for undergraduate scholarships, graduate scholarships and fellowships, and programs that provide a best-in-class experience for all WashU students. Since the start of the fiscal year last July, nearly 2,000 households have made gifts or commitments for more than 200 endowed and expendable scholarships as well as other Make Way priorities. To learn more, visit makeway.wustl.edu.

SMOOTH HOUSE BRINGS HEALING ENERGY

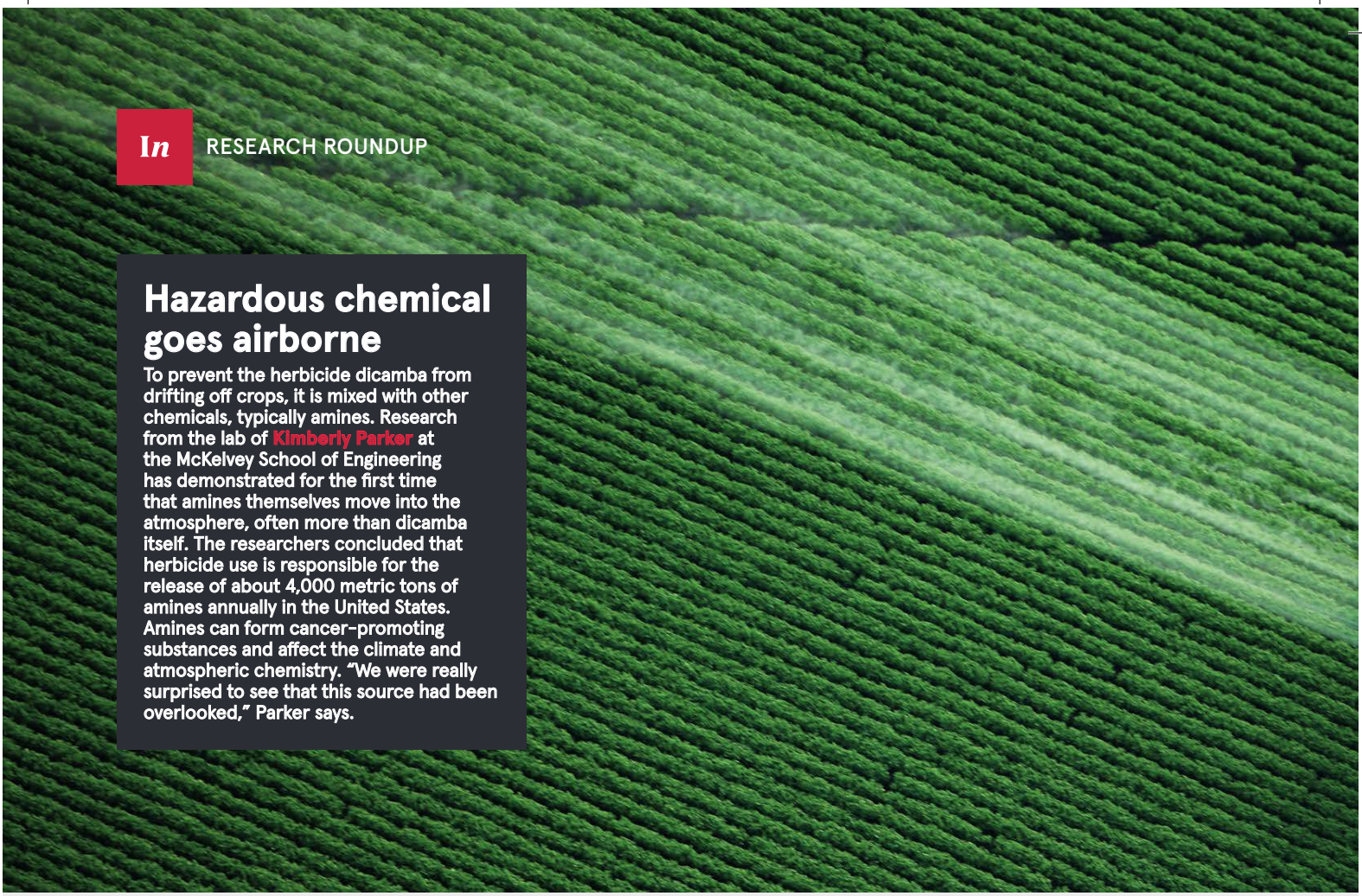
Can better design improve patient outcomes? Can energy-efficient architecture contribute to public health? A team of students, architects, medical professionals and engineers sought to answer these questions as they designed and constructed the Smart Home for Occupational Therapy Healing, aka SMOOTH House. The carbon-neutral, net-zero, 2,100-square-foot structure will compete this month in the U.S. Department of Energy's Solar Decathlon Build Challenge.

Located in St. Louis' burgeoning Delmar Maker District, SMOOTH House will help faculty in occupational therapy train students to deliver pro bono community-based services. By providing essential rehabilitative health care to underserved residents, this practice-based education facility will help bridge the service gap as patients transition from hospital to home. SMOOTH House's design prioritizes accessibility and functionality. Some areas, such as the model kitchen, are outfitted with motion sensors to collect data that can aid caregivers in tailoring individual treatment plans.

5/5 ON CAMPUS PRIDE INDEX

Out of 400 U.S. colleges and universities evaluated for LGBTQ-friendliness in 2022 by the national nonprofit group Campus Pride, only 44 — including WashU — earned five out of five stars. Washington University received top marks for its campus safety, counseling, academic life and institutional support.

"This is very exciting news," says **Travis Tucker,** director of LGBTQIA+ engagement at the Center for Diversity and Inclusion. "Staff, faculty, parents and families use this resource to help make decisions about where they will ultimately go to school, work and build community."



Hazardous chemical goes airborne

To prevent the herbicide dicamba from drifting off crops, it is mixed with other chemicals, typically amines. Research from the lab of Kimberly Parker at the McKelvey School of Engineering has demonstrated for the first time that amines themselves move into the atmosphere, often more than dicamba itself. The researchers concluded that herbicide use is responsible for the release of about 4,000 metric tons of amines annually in the United States. Amines can form cancer-promoting substances and affect the climate and atmospheric chemistry. "We were really surprised to see that this source had been overlooked," Parker says.

LUNG INFECTIONS CAUSED BY SOIL FUNGI ARE A PROBLEM NATIONWIDE

In the 1950s and '60s, studies showed that fungal lung infections were a problem only in certain parts of the country. New research from the School of Medicine shows that this is no longer the case. By calculating the number of infections nationwide from 2007 to 2016, the WashU researchers revealed that the three main kinds of soil fungi causing lung infections have all expanded their ranges in recent decades, most likely due to climate change. Reliance on outdated maps may lead to delayed or missed diagnoses, the researchers warn.

VENUS BALLOON PROTOTYPE ACES TEST FLIGHT

A scaled-down version of an aerial robotic balloon, or aerobot, that could one day travel into Venus' atmosphere recently completed two test flights in Nevada. Arts & Sciences planetary scientist **Paul Byrne** is a science collaborator with NASA's Jet Propulsion Laboratory and the Near Space Corp. on the project.

"The success of these test flights is a huge deal for us," says Byrne, who is a faculty fellow of Washington University's McDonnell Center for the Space Sciences. "These tests form the foundation for how we can achieve long-term robotic exploration high above Venus' hellish surface."

FIRST EVIDENCE OF SOCIAL RELATIONSHIPS BETWEEN CHIMPANZEES AND GORILLAS

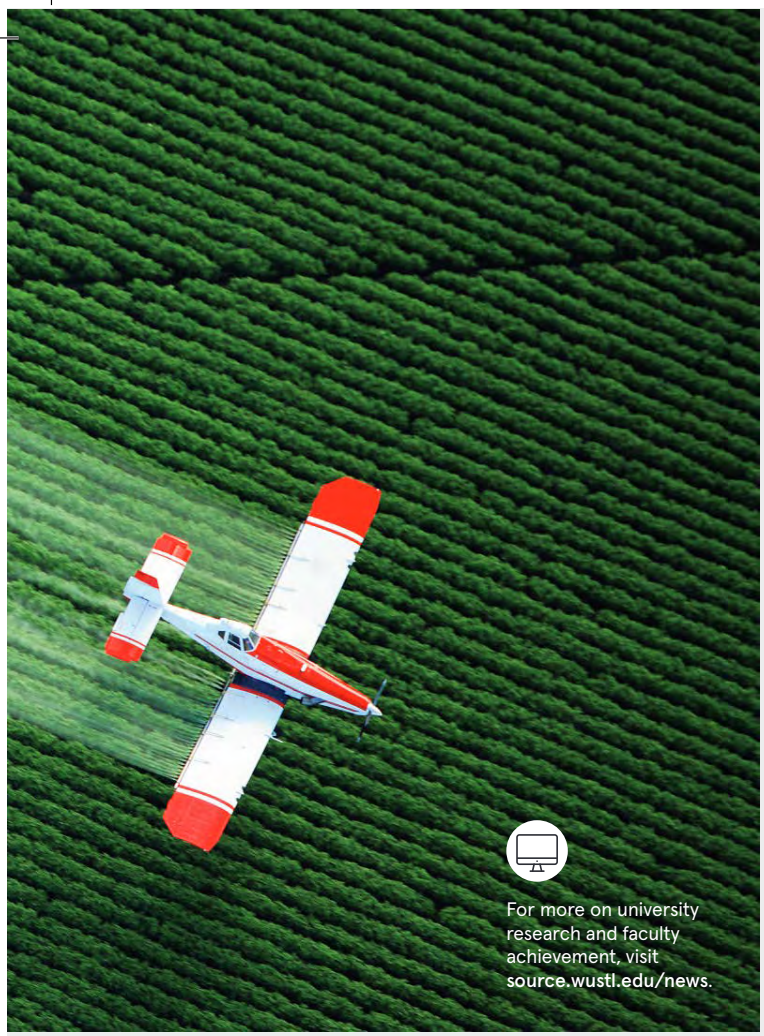
No ape is an island, according to a review of data spanning 20 years. Chimpanzees and gorillas play together, co-feed from the same trees, and even seek out individuals of the other species. The study, led by primatologist **Crickette Sanz** in Arts & Sciences, documented social ties between chimpanzees and gorillas that persisted over years.

"The strength and persistence of social relationships that we observed between apes indicates a depth of social awareness and myriad social transmission pathways that had not previously been imagined," says co-author Jake Funkhouser, a doctoral candidate of biological anthropology.

REPEATED INFECTIONS, GREATER RISKS

Feeling invincible to COVID-19 after being infected? Don't. Researchers from Washington University School of Medicine and the Veterans Affairs St. Louis Healthcare System found that repeat SARS-CoV-2 infections contribute to increased risk of organ failure and death — and such risk seems to increase with each infection.

"This means that even if you've had two COVID-19 infections, it's better to avoid a third," says senior author and clinical epidemiologist **Ziyad Al-Aly, MD.** "And if you've had three infections, it's best to avoid a fourth." The researchers recommend masks, vaccines and vigilance to prevent reinfection.



For more on university research and faculty achievement, visit **source.wustl.edu/news.**

MAKING FENTANYL LESS LETHAL, LESS ADDICTIVE

Fentanyl, a powerful opioid pain reliever, is the leading cause of overdose deaths in the U.S. With the aim of improving the drug's safety profile to make it less lethal and addictive without eliminating its ability to alleviate pain, a team of researchers, led by scientists at WashU Medicine's Center for Clinical Pharmacology and the University of Health Sciences & Pharmacy in St. Louis, has altered the drug's chemical properties and the way that it binds to opioid receptors on nerve cells. Although more studies are needed, the research holds promise for developing safer opioid drugs.

PRECISION INSIGHTS IN WASTEWATER

Research from the lab of **Fangqiong Ling** at the McKelvey School of Engineering has showed that the amount of SARS-CoV-2 in a wastewater system correlates with the burden of disease — COVID-19 — in the region the system serves. To determine the number of individuals represented in a random sample of wastewater, Ling collaborated with mathematician **Likai Chen** in Arts & Sciences to develop a tailored machine-learning algorithm. If trained on real samples of microbiota from more than 1,100 people, the algorithm could determine the number of people represented in a wastewater sample. Going forward, this method may be able to link other properties in wastewater to individual-level data.

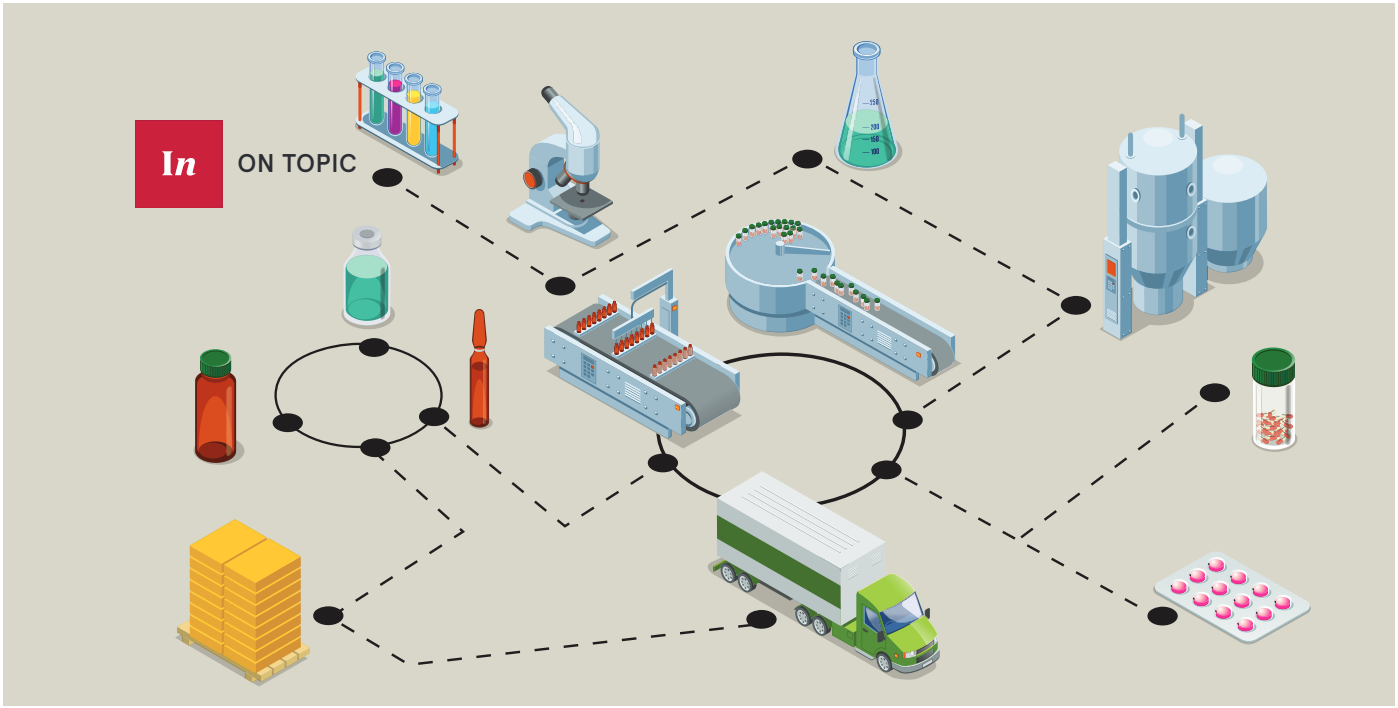
Worsening inequality in home appraisals

More than 50 years after the signing of the Fair Housing Act, discrimination in the housing market not only exists but is getting worse. In a recent report, Arts & Sciences sociologist **Elizabeth Korver-Glenn** revealed that homes in white neighborhoods today are appraised at double the value of comparable homes in communities of color. This represents a 75% increase in neighborhood racial inequality in home values over the last decade. The rapid rise of home values during the COVID-19 pandemic exacerbated the problem; from 2020 through the second quarter of 2022, the average home in white neighborhoods increased in value $136,000, more than twice the appreciation a comparable house in a community of color experienced.

REVELATIONS FROM A 3,000-YEAR-OLD SHIPWRECK

By 1500 B.C., bronze — a material made primarily from copper and tin — was the "high technology" of Eurasia, used for objects such as weaponry, luxury items, tools and utensils. While copper can be found throughout Eurasia, tin is much rarer. The famous Uluburun shipwreck in the Mediterranean Sea yielded metric tons of raw metals, the largest such Bronze Age collection ever found, and the question of where the tin onboard originated has puzzled researchers for decades.

Using advanced geochemical analyses, a team of scientists, including Arts & Sciences archaeologist **Michael Frachetti,** discovered that small communities of highland pastoralists living in present-day Uzbekistan produced and supplied roughly one-third of the tin found aboard the ship. The findings reveal a shockingly complex trade network. "This would be the trade equivalent of the entire United States sourcing its energy needs from small backyard oil rigs in central Kansas," Frachetti says.



In ON TOPIC

Reshoring drug production

The COVID-19 pandemic opened our eyes to the fragility of our pharmaceutical supply chain. Olin research provides a path forward to secure it.

Trouble was brewing before the pandemic, according to **Anthony Sardella,** a senior research adviser at the Center for Analytics and Business Insights and adjunct lecturer at Olin Business School. For years, the U.S. had become increasingly reliant on foreign manufacturers for chemicals and active pharmaceutical ingredients used in critical drugs like antibiotics, blood pressure pills, chemotherapy and cardiology drugs.

"Prior to the pandemic, the international supply chain was resilient enough to mask these concerns," Sardella says. "But sudden changes in the supply chain and increased demand led to drug shortages that continue."

Sardella's research revealed the risks to our public health system created by overreliance on foreign manufacturers — noting that no manufacturing source exists in the U.S. for more than 83% of the active ingredients in the top 100 generic medicines, which represent over 90% of all medicines consumed.

The National Academy of Sciences cited Sardella's research in its 2021 report to President Joe Biden, who made addressing this threat a key issue for his administration. Since then, the president has signed an executive order to launch the National Biotechnology and Biomanufacturing Initiative and pledged more than $2 billion for biotech and biomanufacturing efforts.

The assumption had been that insufficient U.S. manufacturing capacity due to offshoring was largely to blame. However, in 2022, Sardella reported in "U.S. Generic Pharmaceutical Manufacturer Available Capacity Research Survey" that the U.S. does, indeed, have the capacity to make the nation's most essential and critical drugs — yet most of the capacity is sitting idle.

Last year, the generic pharmaceutical industry made headlines when it announced the closure of several U.S. manufacturing plants, citing lower offshore operating costs and labor rates, intense pricing pressure and dependence on offshore sources for raw materials. Sardella and his team surveyed 37 of these sites and found that they are producing at only half of their annual capacity. Operating at full capacity would generate nearly 30 billion additional doses of essential drugs.

Sardella presented these results to industry leaders, government officials and the media last October at the National Press Club in Washington, D.C. He also proposed three recommendations: 1) create a public-private partnership model to reduce financial risk for U.S. manufacturers and make new technology available; 2) repurpose idle sites within 24–36 months; and 3) continue current federal funding efforts to ensure the economic sustainability of U.S. drug manufacturing.

One of the most significant and immediate developments to come out of the presentation is a new agreement to produce the chemotherapy drug lomustine — used to treat brain tumors, Hodgkin's disease and other kinds of cancer — in the U.S. The agreement was made possible in part by API Innovation Center @ Cortex, a nonprofit Sardella founded in 2021 to coordinate efforts among manufacturers, technology innovators and government to produce drugs in the U.S. at lower costs.

"It's enormous news for patients and their families," Sardella says. "Lomustine will be manufactured for the Glioblastoma Foundation, which will provide it for patient care and clinical trials."

Sardella says this is just one example of positive change ahead: "By first leveraging existing manufacturers and, down the line, investing in additional facilities, the U.S. is on the right path to solidify and ensure the security of our drug supply chain."

SARA SAVAT

QUOTE

MY WASHU MOMENT
Faculty and staff weigh in on, for them, what makes WashU, WashU.

"I saw a culture of collaboration, problem-solving and creative ways to get to 'yes.' We figured it out without a roadmap, and, through a very intensive planning process, the whole team maintained a sense of humor, congeniality and commitment to an effort bigger than any of us."

STEPHANIE KURTZMAN, THE PETER G. SORTINO EXECUTIVE DIRECTOR OF THE GEPHARDT INSTITUTE FOR CIVIC AND COMMUNITY ENGAGEMENT, REMEMBERS PLANNING THE 2000 PRESIDENTIAL DEBATE.

"I love those nights when I go to Whispers Café after dinner to read *The New York Times* and drink spiced milk chai tea. The background noise of people chatting, the smell of chai, and the contrast of dark night outside the window and the bright warm feeling inside all add up to a memorable experience, time after time."

KUN WANG, ASSISTANT PROFESSOR OF EARTH AND PLANETARY SCIENCES, WHOSE WASHU MOMENT TAKES PLACE EACH TIME HE VISITS OLIN LIBRARY AT NIGHT.

"To me, seeing that team run onto Francis Field in a WashU uniform is powerful; there's medicine in that. It's an image full of hope. It's how we got through the tough days."

AARON KEEN, AB '94, HEAD FOOTBALL COACH, IS PREPARING FOR HIS THIRD SEASON. HIS WASHU MOMENT OCCURS EVERY GAME DAY.

"The day we officially opened the mySci Resource Center on Vernon Avenue, with so much support and enthusiasm from our WashU colleagues. Chancellor Mark Wrighton stole the show with his 'Magic Mark' chemistry demonstrations. Everyone shared in our excitement about making science accessible and engaging for students in our region. The energy and promise of that celebration confirmed the value of our vision, which still sustains ISP's work."

VICKI MAY, EXECUTIVE DIRECTOR OF THE INSTITUTE FOR SCHOOL PARTNERSHIP (ISP), RECALLS A MOMENT 10 YEARS AGO THAT STILL RESONATES.

"I remember leaning against a tree by Mudd Field looking it over. I saw Siegel Hall; I saw the law school and thought, 'When I think of college, this is what I'm thinking of.'"

KRIS CAMPA, AN ERVIN SCHOLAR WHO NOW DIRECTS THE ERVIN SCHOLARS PROGRAM, REMEMBERS THE FIRST TIME HE SAW WASHU.

L22 History 301U Hamilton's America: How to Do the History of Politics and Government

Hamilton: A gateway to early American policy and politics

Their shot: Students learn craft and study of history via award-winning musical.

When **Peter Kastor,** the Samuel K. Eddy Professor, needed a topic for a seminar that teaches history majors how to be historians, he chose history's man of the moment: Alexander Hamilton.

"I wanted to create a course on how to examine the histories of politics and of policy in early America," says Kastor, professor of history and also American culture studies in Arts & Sciences. "At the time, *Hamilton*, the musical, had just hit. So I said, 'I'm going to shape the course around Alexander Hamilton.' Students know who he was.

"Not only was Hamilton a very important political figure, he was also a very important policy-making official."

Hamilton the politician helped build the coalition that secured ratification of the U.S. Constitution in the 1780s, crafted crucial legislation during George Washington's administration and became one of the founding leaders of the Federalist Party.

"He, as much as anyone, determined the outcome of the election of 1800," Kastor says. "He had a deep belief that he had a right and a responsibility to shape American politics."

Meanwhile, Hamilton the policymaker, as secretary of the treasury, was tasked with finding ways to convert the United States from a place of fiscal crisis, unpayable debts, extraordinary volatility and no credit on international markets into a place of fiscal stability, prosperity and active trading relationships with other nations.

"He did all of those things in six years," Kastor says.

To learn historical research methods and delve into the political culture of the era, students examine a wide range of primary sources. In one assignment, students read digitized newspapers to understand the election of 1800. In another, they conduct a quantitative analysis of federal employees. One assignment invites students to compare the timeline of the musical to actual events. (See sidebar on pg. 13.)

Also, students read letters Hamilton received from people requesting jobs in the fledgling U.S. treasury department. "The first thing students always conclude is that they would never write an application letter the way it was written in the 1790s. Applicants would spend half a page apologizing, describing how much they had suffered, and only at the end would they say what they wanted," Kastor says.

Then students write their own job request letters in longhand, using the cultural norms and language of the time. "I'm amazed by the students' ability to master 18th-century vernacular and delighted by the good humor they bring to the task. They tend to write some version of 'I beg leave to disturb you and your busyness. I would not disturb you but for the absolute necessity of finding a future for myself.'"

Written assignments also include individual or group presentations. "I want students to gain practice with public speaking and collaboration," Kastor says. "I want them to learn how to articulate their ideas clearly and use visual materials like PowerPoint judiciously. They all groan when they remember enduring endless slideshows, and they work hard not to impose that on each other. But these presentations also reinforce what they're learning about history.

"When one student after another reports on drawing similar conclusions, the entire class realizes how they can draw a consensus," he says. "Likewise, when each student chooses to approach the same source in a different way, they learn from each other that historians can and should have their own approaches to sources."

While Hamilton's name draws attention, students have other reasons to take the class — even if they've never seen the musical. "I wanted to learn how the U.S. translated the principles found in the Constitution into a functioning government," says junior James Sun.

Kastor's goal is to teach students skills that will serve them as history majors and beyond. "The most important skills students should have are critical thinking, critical reading, collaboration and respect for one another," he says. "We are equipping students to be good citizens. No discipline does that better than history. We are products of our past, and by studying that past, we have the analytical vocabulary to understand the world around us."

■ JULIE KENNEDY, MA '22

WHAT *HAMILTON* GETS RIGHT — AND WRONG

"What the musical does really well," says Peter Kastor, who teaches "Hamilton's America," "is capture the culture of honor, the crisis of the Revolution and the stature of George Washington."

- "In talking about dueling, it really captures not just the culture of honor, but how important the culture of honor was to politics."
- "It also demonstrates how everyone revolved around George Washington. It emphasizes just how important he was."

By contrast, "everything the musical gets wrong is because it has to make Hamilton the hero," Kastor says.

- "Hamilton was deeply uncomfortable with democracy. He believed in republicanism, which meant that you have accountability, you have elections, but that there is a natural leadership class. Others should defer to them. There's no room for that in the musical."
- "Eliza Hamilton's song ['Who Lives, Who Dies, Who Tells Your Story'] would have you believe the Hamiltons and their friends were committed antislavery advocates," he says. "I find no evidence of sustained antislavery sentiment in the person of Alexander Hamilton, and as historians have recently found, Hamilton had no qualms serving as an attorney for slaveowners."

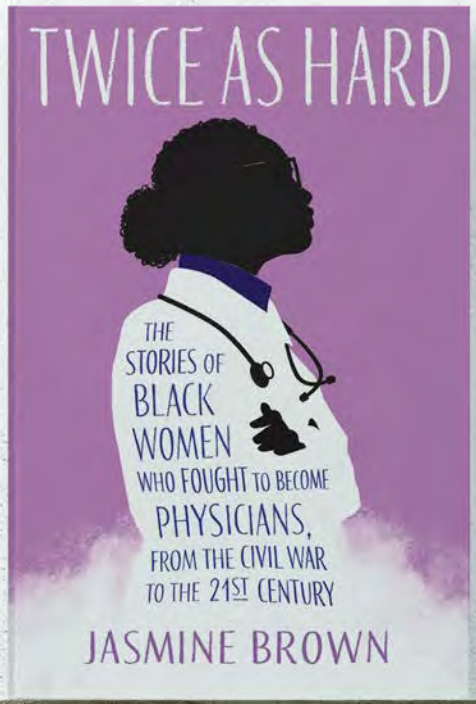
Illustration: Monica Duwel

Shining a light on Black women physicians

A new book by alumna Jasmine Brown fills in overlooked chapters of U.S. medical history.

From the Civil War to the 21st century, Black women have fought to become physicians. A new book by **Jasmine Brown, AB '18,** tells the story of the barriers Black women pursuing a career in medicine have faced throughout history. Published in January, *Twice as Hard* (Beacon Press) shines a light on the achievements of these women, often ignored or forgotten.

"It is important to understand the barriers Black women physicians faced," Brown says. "As more professionals are working to correct some of the wrongs and increase diversity in medicine and research, we need the historical perspective to understand what these barriers are rooted in. Where are they coming from? I hoped to show some of the ways that tensional barriers contributed to what we experience today."



After earning a biology degree from WashU with a focus on neuroscience, Brown, an Ervin and Rodriguez scholar, spent two years at the University of Oxford as a Rhodes Scholar doing research on the topic that ultimately earned her a master of philosophy degree in the history of science, medicine and technology.

Brown, who is now in her third year of medical school at the University of Pennsylvania, used oral histories as her primary research method. She read transcripts and listened to audio versions of oral histories. She also interviewed practicing Black women physicians. In fact, researching the book was the first time she had met a Black woman physician — despite being a Black woman pursuing medicine.

Twice as Hard captures the historical perspective of how the medical field excluded Black people and women. At the turn of the 20th century, medicine underwent a transformation. Once thought of as a less respectable field, there was a push to make the profession prestigious and elite. The implemented changes intentionally filtered out people from the lower class or communities not viewed highly within society.

"During that time, seven medical schools dedicated to Black physicians were closed, leaving only two," Brown says. "All of the women's medical schools were closed."

The message was clear: Both Black men and women were not welcome. And a bottleneck was established, making it extremely difficult for Black women to access medical education. The number of Black women physicians plummeted, and the effects are still felt today.

One story in the book tells of Rebecca Lee Crumpler, MD, the first African American woman physician, who attended medical school when slavery was still legal. She graduated a year after the Emancipation Proclamation was signed and provided medical care in Virginia to liberated Black Americans.

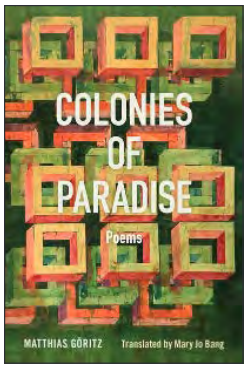
Another story is of May Edward Chinn, MD, who was disowned by her father for going to college and eventually medical school. Chinn worked with Peter Murray, a Black male physician, and went door-to-door caring for Black patients. They also cared for Japanese patients after Pearl Harbor — a time when other physicians refused to see them.

"I felt connected to all of them, even the women born 100 years before me who are no longer living," Brown says. "Learning about the success they found in medicine made me feel like I could also have a significant impact as a physician — despite the obstacles I'll likely face as a Black woman.

"I want to share those experiences with other young women, so they don't have to journey the path to medicine without role models that look like them," Brown says.

■ MARTA WEGORZEWSKA

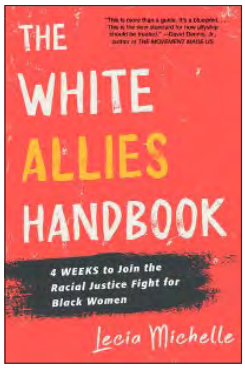
FACULTY



Colonies of Paradise

MATTHIAS GÖRITZ, TRANSLATED BY MARY JO BANG

Mary Jo Bang, professor of English, introduces the poems of German poet Matthias Göritz to an English-language audience. Originally published in German as *Loops*, the book takes the reader on a tour of Paris, Chicago, Hamburg and Moscow, exploring themes of childhood, travel and the human experience. Göritz's sly humor, insight and artistry are brought forth in Bang's careful and innovative translation.



The White Allies Handbook

LECIA MICHELLE

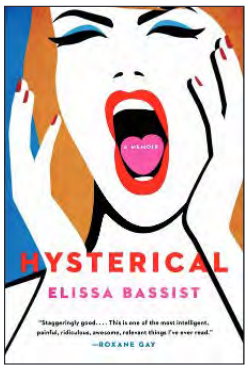
For six years, WashU Libraries' Felicia Fulks, who writes as Lecia Michelle, led a racial justice group and honed her voice among a growing number of Black writers writing about racism. This book on allyship goes beyond theory and provides actionable steps for those who want to take the leap from reading about to actually being an ally.

Sound Experiments

PAUL STEINBECK

Founded on Chicago's South Side in 1965, the Association for the Advancement of Creative Musicians (AACM) is the most influential collective organization in jazz and experimental music. Here, in a sonic history spanning six decades, Paul Steinbeck, associate professor of music, offers an in-depth scholarly and musical investigation of AACM, analyzing individual performances and innovations in captivating detail.

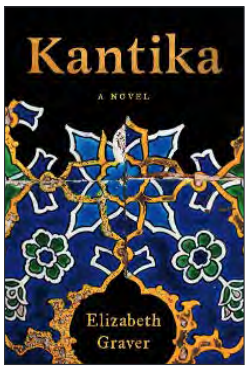
ALUMNI



Hysterical

ELISSA BASSIST, AB '07

Women are known to internalize and perpetuate directives about their voice, making it hard to emote or "just speak up." In *Hysterical*, a memoir of "a voice lost and found," Elissa Bassist writes on where that voice is being squashed and where it needs amplification. She breaks her own silence and calls on others to unmute their voices, listen to their voices above all others, and use their voices without regret.



Kantika

ELIZABETH GRAVER, MFA '90

A multigenerational story, the novel moves from Istanbul to Barcelona, Havana and New York. It's Elizabeth Graver's fifth, described as both "an immigrant's tale and a hero's journey," and a haunting, inspiring meditation on the tenacity of women. Inspired by Graver's own grandmother, *Kantika* celebrates the insistence on seizing beauty and grabbing hold of one's precious life.

Everybody in the Red Brick Building

ANNE WYNTER, AB '06, ILLUSTRATED BY OGE MORA

A chain reaction of noises wakes up several children (and a cat) living in an apartment building. But it's late in the night, so despite the disturbances, the building's inhabitants return to their beds — with a new set of sounds to lull them to sleep. For her debut as a children's author, Anne Wynter was recognized with the Ezra Jack Keats Award.

Photo: Sean Garcia

Bradley L. Jolliff: Next steps in returning people to the Moon

Why did NASA orbit the Moon last fall? Planetary scientist **Brad Jolliff** explains the Artemis missions and why they are so important for the next generation of space exploration.

"As we leave the Moon at Taurus-Littrow, we leave as we came and, God willing, as we shall return, with peace and hope for all mankind."

These were the words of Apollo 17 astronaut Eugene Cernan just over 50 years ago as he and fellow astronaut Harrison Schmitt departed from the lunar surface for the last time as part of the Apollo program.

In the years following Apollo, NASA shifted the human spaceflight program to the Shuttle and the International Space Station (ISS). Much has been learned from these activities, but now it is time to move beyond low-Earth orbit into deep space, beyond the protection of Earth's magnetic field, and to do so in a sustainable way.

Returning to the Moon is the logical place for this next great endeavor; it is only a short trip from Earth, and the Moon offers a stable platform for humankind to learn to live and work off Earth and beyond low-Earth orbit. While the allure of Mars fascinates many, the truth is that we have much to learn about deep space travel before we can entertain that trip with humans. In the meantime, the Artemis rocket and the Orion capsule once again give the U.S. and NASA the capability to launch humans into deep space and return them safely to Earth.

Although Artemis-1 was over budget and years behind schedule, we could not help but applaud as we watched it lift off from Cape Canaveral Nov. 16, 2022, and begin a journey — one that would take it around and well beyond the Moon and return to Earth, testing the new Orion capsule's re-entry through Earth's atmosphere and splashdown. Although it carried no crew, Artemis-1 delivered scientific experiments to space, and the Orion capsule carried three instrumented mannequins designed to test the effects of radiation on the human body.

Radiation is a major concern for extended operations in deep space, where a solar flare could spell disaster for astronauts. On the Moon, protection will be required. And, fortunately, there are ways to do it using materials on the Moon itself or by using the Moon's natural caves — lava tubes.

Critical to the success of Artemis, which aims to put humans on the Moon by 2025 or 2026, is to create an outpost that is sustainable, much like the research station at McMurdo in Antarctica. As a planetary body, the Moon has rich geology and history. In fact, it holds a better record of events in the early solar system than does Earth, especially of the great impact bombardment that affected all the planets of the inner solar system. Some of that record is known from Apollo-era studies and from orbital missions of the past two decades, but much remains to be learned. The Moon's poles contain buried ices in permanently shaded craters, and studies of these ices may reveal unique information about the origin of Earth's water and other volatile elements. The ices may also provide a ready source of hydrogen and oxygen for life support and for use as rocket fuel for travel beyond the Earth-Moon system.

The success and sustainability of the program will be driven by three issues: 1) national interests, including defense; 2) commercial interests; and 3) international cooperation. The Moon is "high ground" in cislunar space, with an unparalleled and synoptic view of Earth, one that was featured during the Artemis-1 mission. Carrying out activities successfully is a form of soft power currently being exercised by the U.S. and by China, which also has a very active lunar exploration program.

Commercial interests are coming to fruition as companies compete for transportation and lander services, initially in concert with NASA. It is only a matter of time, however, before entities such as SpaceX and Blue Origin develop the capabilities and implement missions of their own, including for space tourism and adventure, and the harvesting and utilization of lunar resources.

Finally, the sustainability of deep-space operations on the Moon will require international cooperation. The ISS has been a great proving ground in this regard. Such space activities are expensive, and the costs are more palatable if shared by global partners. Space activities also uplift the national spirit and inspire young and old alike.

This brings us full circle to astronaut Cernan's words upon departing the Moon Dec. 14, 1972: *"...we shall return, with peace and hope for all mankind."* Although returning to the Moon, this time to stay, may have many diverse motivations, we must ensure that our actions are peaceful and serve to unify and inspire, and lead to ways that we can improve life here on Earth.

■ BRADLEY L. JOLLIFF

WHO

Bradley L. Jolliff

TITLES

The Scott Rudolph Professor of Earth and Planetary Sciences in Arts & Sciences

Director, McDonnell Center for the Space Sciences

TEAMS

Member, Lunar Reconnaissance Orbiter Camera science team

Principal investigator, WashU's Electron Microprobe Laboratory

Leader, Planetary Materials Research Group

Institutional lead investigator, NASA's Apollo Next Generation Sample Analysis Program

EXPERTISE

Teaching and research activities focus on the study of minerals and rocks of the Earth, Moon, Mars and meteorites, and what they reveal about conditions of formation and planetary processes over the past 4.5 billion years.

More than a medal

The Center for the Humanities' biennial International Humanities Prize, which was awarded to Alison Bechdel in 2022, builds community and celebrates excellence in the world of arts and letters.

It's a warm fall afternoon and Clark-Fox Forum is buzzing with anticipation.

A capacity crowd has gathered to see cartoonist **Alison Bechdel,** known for her richly layered depictions of queer life and family relationships, receive the 2022 International Humanities Prize from Washington University. Hundreds more tune in to the livestream at home and from an overflow watch party in Givens Hall.

"Today we are celebrating Alison Bechdel," begins **Rebecca Wanzo,** author of *The Content of Our Caricature: African American Comic Art and Political Belonging* (2020) and professor and chair of women, gender, and sexuality studies in Arts & Sciences. "We are celebrating her ambassadorship of comics and cartooning, her decades-long celebration of lesbian communities and chosen families, and above all, her beautiful and heart-transformative work."

That work includes *Dykes to Watch Out For*, the much-loved comic strip Bechdel syndicated from 1983 to 2008, and her celebrated memoir *Fun Home: A Family Tragicomedy* (2006), which chronicles Bechdel's relationship with her closeted father. Adapted into a Tony Award–winning musical, *Fun Home* was followed by two additional memoirs: *Are You My Mother?* (2012) and *The Secret to Superhuman Strength* (2021).

"Every author has one subject that they write about again and again," Bechdel quips in her acceptance speech. "My subject is myself."

But no artist is an island, and Bechdel's true theme for the evening is the often-circuitous nature of artistic influence. For Bechdel, this is exemplified by poets Anne Bradstreet (1612–72) and, especially, Adrienne Rich (1929–2012), whose writing displayed an uncanny knack for finding the cartoonist at key moments in her own personal and professional development.

Days later, **Stephanie Kirk,** director of the Center for the Humanities in Arts & Sciences — which organizes the prize — is still thinking about Bechdel's talk. "The humanities, by their nature, are deeply interdisciplinary," Kirk muses. "Few scholars are able to work on, say, a body of literature without considering the context in which it was formed or other intersecting discourses."

That sense of bridging communities, Kirk adds, has become a defining feature of the WashU humanities prize. Bechdel's work, for example, can be situated within literary and visual arts traditions, but it also speaks to the concerns of gender studies, psychology, performing arts and social justice activism.

"This is work that engages multiple publics," Kirk says.

Cathedral of ideas

As a student at University City High School, **Phyllis Wilson Grossman, AB '66,** would sometimes cut class to attend the WashU Assembly Series.

"It was a cathedral of ideas," Grossman remembers of the lecture series. "I could learn about things that weren't part of my everyday life. That was so exciting."

In many ways, the biennial International Humanities Prize follows the Assembly Series model. Conceptualized by Grossman and her husband, **David M. Grossman, PhD '73** — through conversations with **Gerald Early,** the Merle Kling Professor of Modern Letters and founding director of the Center for the Humanities — it spans a variety of disciplines to honor sustained and significant contributions to the world of arts and letters. The Grossmans also created a permanent endowment to fund a cash prize, currently $25,000, that accompanies the award.

The inaugural recipient, Turkish novelist **Orhan Pamuk,** was awarded the prize in 2006 — weeks before accepting the Nobel Prize in literature. Subsequent recipients have included journalist **Michael Pollan** (2008), novelist **Francine Prose** (2010), filmmaker (and future WashU Commencement speaker) **Ken Burns** (2012), influential poetry scholar **Marjorie Perloff** (2014), and dancer and choreographer **Bill T. Jones** (2016).

Architect **Sir David Adjaye,** perhaps best known for designing the Smithsonian National Museum of African American History & Culture — and whose earthwork "Asaase III" is to be installed at The Griot Museum of Black History in St. Louis — received the prize in 2018.

Grossman notes that recipients are nominated entirely by WashU faculty, who present plans to include the recipient's work in WashU classrooms. For example, last fall, Bechdel's *Fun Home* was taught by Wanzo as well as **Paige McGinley,** associate professor of performing arts, and **Chris A. Eng,** assistant professor of English, all in Arts & Sciences.

While on campus, Bechdel met with students from all three classes and conducted studio critiques with MFA students studying illustration and visual culture in the Sam Fox School of Design & Visual Arts. She also attended a reception in WashU's Mildred Lane Kemper Art Museum, which included a pop-up exhibit showcasing St. Louis–based comics artists.

Grossman, observing the critiques, was struck by Bechdel's thoughtful engagement. "The care with which she went over each work was amazing," Grossman concludes. "It was a marvelous day."

■ LIAM OTTEN, BFA '93

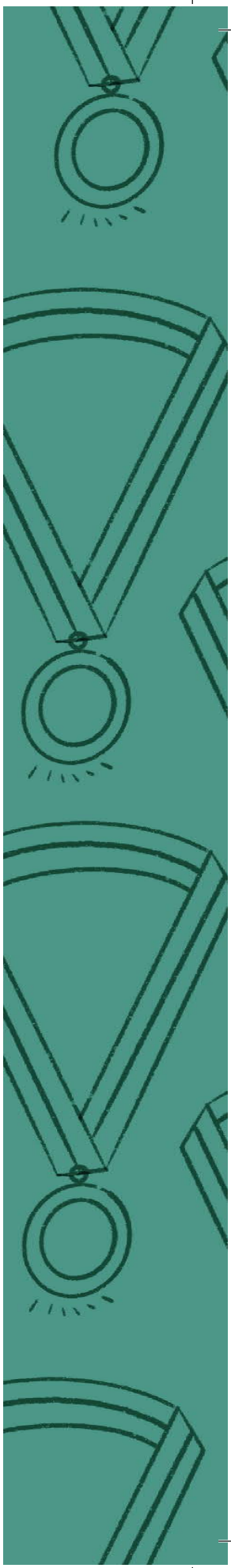
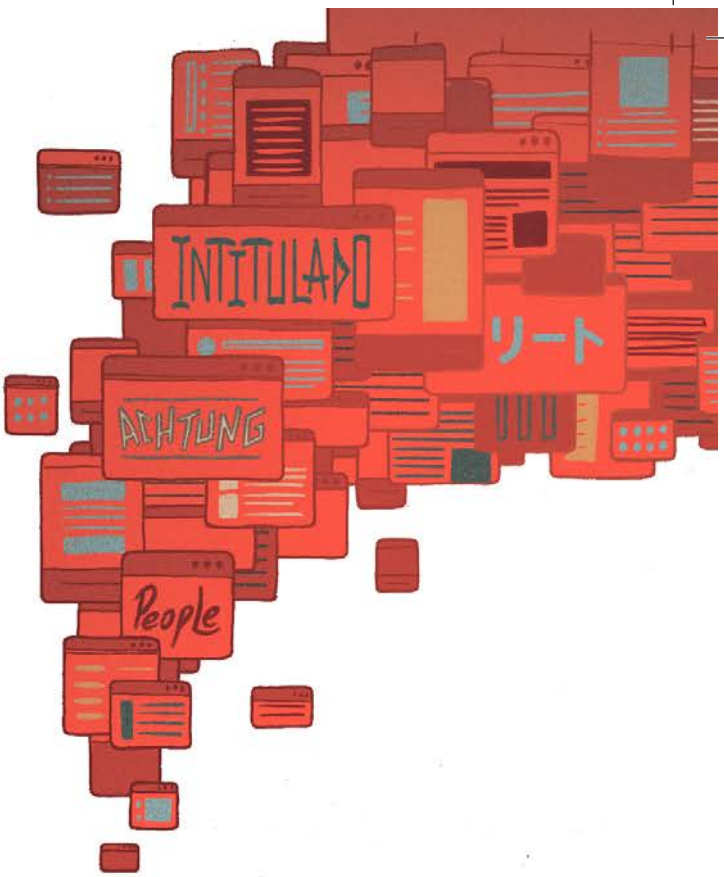


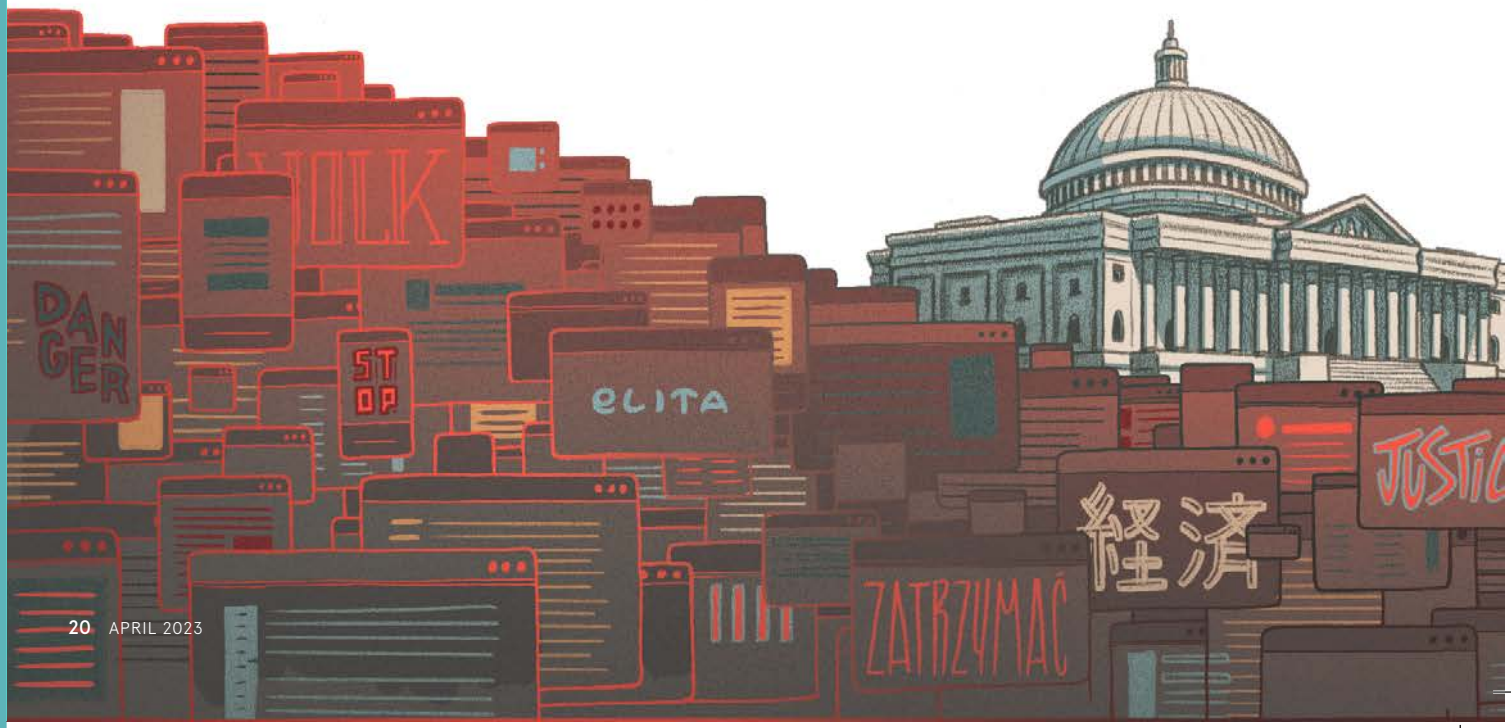
Illustration of Alison Bechdel: Monica Duwel

TRACKING THE POPULIST TSUNAMI



BY ANALYZING SOCIAL MEDIA CONTENT GENERATED ACROSS THE GLOBE, POLITICAL SCIENTISTS SEEK TO UNDERSTAND THE CURRENT WAVE OF POPULIST RHETORIC FLOODING THE INTERNET AND ITS THREATS TO DEMOCRACIES.

STORY BY JEANNETTE COOPERMAN | ILLUSTRATIONS BY MAX TEMESCU, BFA '13



"YOU SAY, 'WE ARE RESTORING DEMOCRACY,' AND IN THE PROCESS, YOU ARE GETTING RID OF ALL ITS INSTITUTIONS."
— MARGIT TAVITS

POPULISM HAS ALWAYS COME IN WAVES, SOMETIMES ROCKING THE STATUS QUO, SOMETIMES REFORMING IT. These days, though, it feels like a tsunami.

What are the implications of this trend for democracy? Curious, three members of the Washington University political science department in Arts & Sciences are collecting an unprecedented dataset of global social media. By analyzing such a massive and varied amount of data as it changes over time, they intend to find out what triggers populist rhetoric, how it spreads and when it does the most damage.

The project began when Jacob Montgomery, director of both the Transdisciplinary Institute in Applied Data Sciences and the American Social Survey, sponsored by the Weidenbaum Center on the Economy, Government and Public Policy, realized this trove of data was within reach. Because social media is concentrated into a handful of platforms, it is currently possible, for the first time in history, to study — simultaneously, in detail and over time — exactly how thousands of political parties and candidates communicate with the public and with one another. How they differ; what sort of rhetoric they use and in what circumstances; how people respond; how and when and why that response changes.

If he moved quickly, Montgomery could use CrowdTangle, a social media tracker that Facebook's parent company, Meta, opened to give journalists and academics easy access to content posted on public pages. (Meta reportedly plans to shut down CrowdTangle, which was used by reporters during the 2020 elections to track the spread of disinformation on Facebook. But academics are likely to retain access to some version of the tool.) If Montgomery could amass the Facebook posts of political parties and candidates in 79 democratic countries, it would be the largest dataset of political campaign rhetoric ever assembled.

It may seem overwhelming to analyze the larger patterns in campaign rhetoric given this vast amount of data. But not to researchers who know how to handle it. WashU's political science department ranks No. 12 in *U.S. News & World Report*'s latest comparison of the best graduate programs in the nation. Montgomery, associate professor, already studies social media and the use of statistics to measure political concepts like ideology and populism. His colleague Christopher Lucas, assistant professor, is an expert in machine learning, especially for the analysis of natural language. And their department chair, Margit Tavits, the Dr. William Taussig Professor in Arts & Sciences, specializes in comparative politics, political parties and the influence of language. Even the book she co-authored, *Voicing Politics: How Language Shapes Public Opinion* (Princeton University Press, 2022), connects because it looks at the way peculiarities of language shape political attitudes and beliefs.

The three political scientists teamed up. With a grant from the Weidenbaum Center, they hired a postdoc, Taishi Muraoka, PhD '19, to set up a protocol for collecting the information. How could they figure out who was running for office all over the world, in scores of different languages, and then keep tabs on their communications? Muraoka worked it out.

Impressed by the proposal, the National Science Foundation awarded the team $571,000 to finish the project in three years. There is, after all, some urgency to the questions they are asking.

The first challenge was agreeing on a definition of "populist," a term that can be as slippery as a slime eel. Still, they knew what they wanted: rhetoric that juxtaposes the people against "the elite," that portrays the people as being lied to, betrayed and misrepresented by the corrupt and disconnected elite.

Given populism's orientation to "the people," you'd think its impulse would be, by definition,

democratic. That, says Tavits, is what makes this rhetoric potentially dangerous: "You say, 'We are restoring democracy,' and in the process, you are getting rid of all its institutions." You cast doubt about their legitimacy, then persuade people that the process is not working in their favor.

Along the way, populist rhetoric often vilifies minorities such as immigrants, people of color, the LGBTQ community. Which is also a bit of a paradox for a technique that aims its scorn at the few who wield mainstream power. A movement that defines itself as anti-elite and "of the people" is siding against minorities within its own populace? "You hate the elite because they are favoring minorities," Tavits explains. "The minorities are therefore a threat to your standing in society. You feel that your economic status and social status will suffer because of these accommodations."

Populist rhetoric does not always target minorities, however. And while it is often used by the political right, it is not itself an ideology; its techniques can be invoked just as easily by the left.

"What unites all this rhetoric is its implication that the elites are corrupt, the political process is corrupt, and the institutions of democracy are not operating correctly," Montgomery explains. To demonstrate, he raises his voice slightly, mixing the classic populist notes of frustration and frenzied idealism: "'If only we were listening to the pure will of the people …'"

That pure will can be hard to discern, easy to manipulate and, in some cases, have basis in accurate critiques, he says.

"For any particular claim, there could be some truth behind it, some valid concern," Montgomery continues. "We are not necessarily starting with the stance that all populist rhetoric is bad. But we study only democracies — we're not studying, for instance, Russia — and in the aggregate, this sort of rhetoric can fundamentally erode the basic tenets of democracy." A constitution, for example. The peaceful transfer of power. Acceptance of election outcomes. The need to obey the law.

The team's second challenge is the many languages they are trying to compare and analyze. In the past, political scientists have used snapshots of data, freezing one moment in time, or compared political parties' manifestos. The exciting change with this project is its ability to gather and compare more dynamic, rapidly shifting data over time. But that means working across many different languages.

"The simplest way to analyze documents written in different languages is to translate them all into a single language spoken by the researcher and proceed as if the documents were in fact monolingual," Lucas says. "But that's unsatisfying and inelegant, and it can be unreliable."

Translation is difficult: Languages are stuffed with quirks and layered with nuance, subtext, connotation, idiom. AI translation is improving fast for oft-spoken languages in which the algorithms can be trained on a huge assortment of documents. But what about, say, Tagalog, for which far less data is available for training?

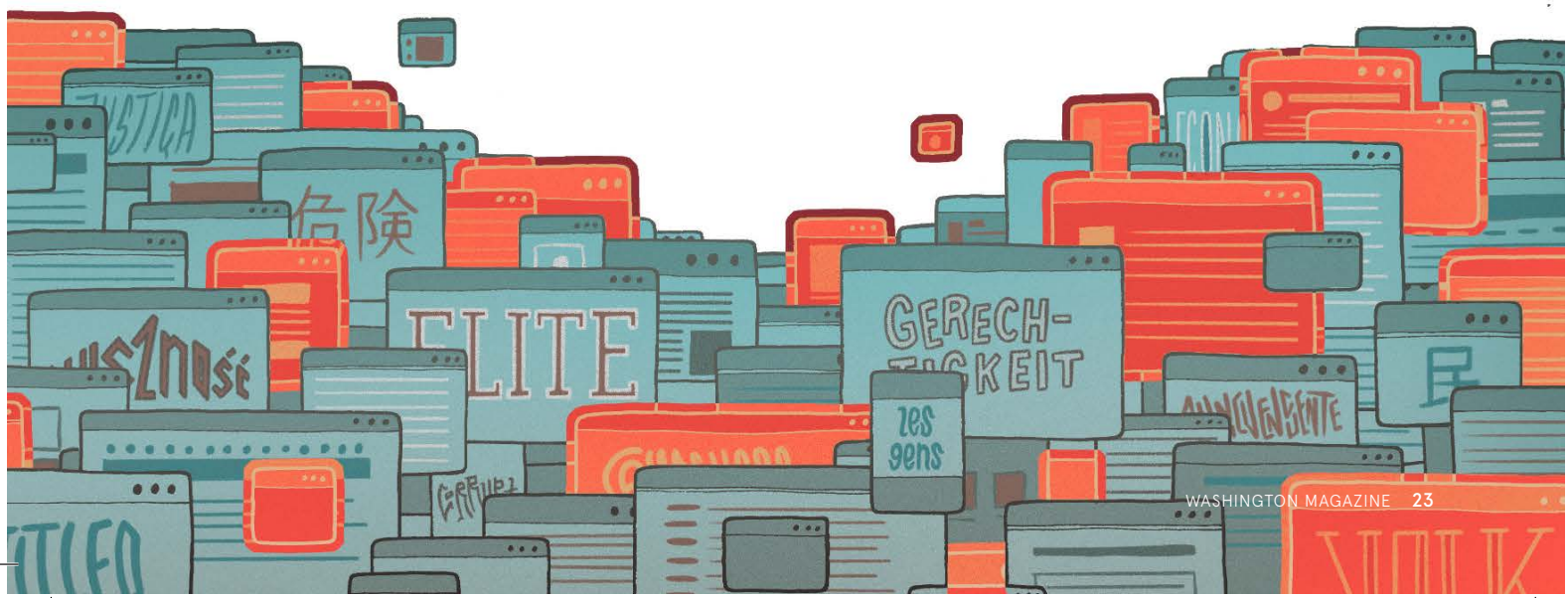
"Machine learning and computation, though, are moving so fast," Lucas continues. "An approach that was cutting edge a few years ago has likely been replaced by something faster and more accurate. With recent advances, we can automate the analysis of millions of social media posts written in dozens of languages about a range of topics."

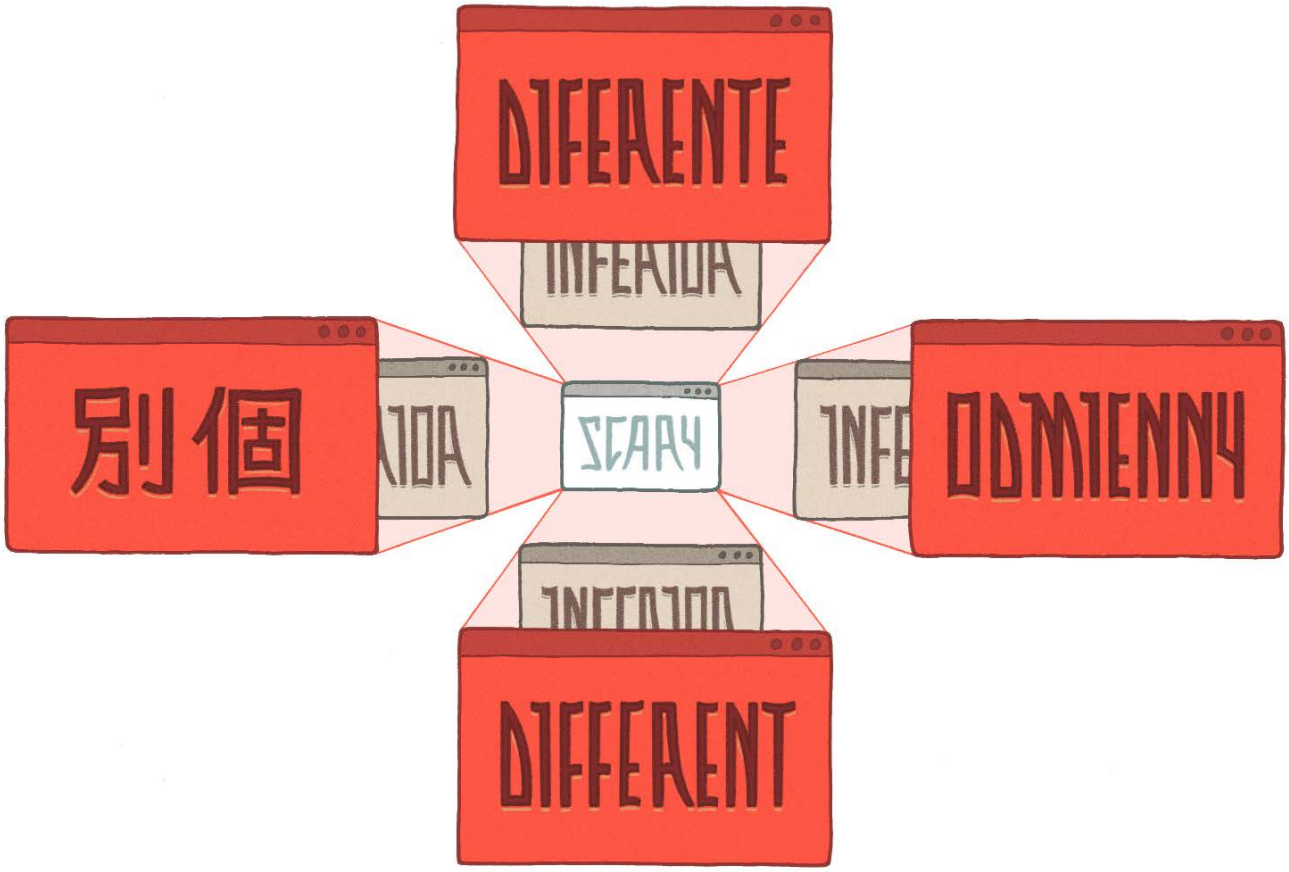
You can train your algorithm to recognize populist rhetoric, he says, feeding it examples in different languages, and then let the model label that sort of rhetoric in all languages.

Tavits' expertise rests not with the programming of machine language but with the influence of human language. She grew up in Estonia, and because only 1 million of its 1.39 million residents

"WITH RECENT ADVANCES, WE CAN AUTOMATE THE ANALYSIS OF MILLIONS OF SOCIAL MEDIA POSTS, WRITTEN IN DOZENS OF LANGUAGES ABOUT A RANGE OF TOPICS."

— CHRISTOPHER LUCAS





spoke Estonian as their first language, she learned Russian and English, then added German, French and Spanish. "And we lived close to the Latvian border," she adds with a grin, "so you at least need to know the Latvian word for ice cream!"

Through her childhood, Estonia was occupied by the Soviets. She was in her teens when the USSR collapsed and democracy was restored. She listened, hard, to political news — about her own country but also about the rest of the world.

All that exposure to different political systems and different languages made an impression. A hodgepodge of political parties was emerging in Estonia, and the political landscape was volatile. "All those dynamics fascinated me," Tavits recalls. "I started trying to understand how people formed successful political parties — and how they communicated with the people they were trying to reach."

She was becoming aware of linguistic nuance and of the subtleties of language's influence on behavior. In English, she noticed, euphemism was more common — maybe as a strategic attempt to draw the listener's attention away from certain things? In other countries, politicians had a choice about which language to use, and that could also be an election tactic. Tavits began reading articles in psychology and linguistics, combing through the research on various language effects and trying to figure out how those findings would apply to political science.

Now years later, political language is finally emerging as a field of study. The people who construct those omnipresent polls, for example, rarely pay real attention to language. "They think about it as a background variable," Tavits says, "but they never stop to think, 'If I ask the same question in Spanish instead of English, is that going to introduce systemic error into the responses?' The answer is always yes. But what the bias is depends on what you are asking."

She has been exploring that sort of bias for years, weaving it into her research in comparative politics. Understand how language affects the thought process, and you will have a better grasp of the way people form political attitudes, how language's quirks and semantic differences nudge our attention, how tone affects our responses, and why outcomes vary across nations and regions.

While populism is mostly a rhetorical tool, Tavits knows from her research that words matter. And she stresses that it is important to

understand the consequences — intended or unintended — of politicians using this tool.

Consistently, "populism has been tied to economic insecurity," she notes, "and to increased immigration, which can be related to perceptions of increased crime or terrorism." The comparison is not a direct one, but economic downturn in 1930s Europe raised similar tensions, allowing National Socialism — which had vivid streaks of populism — to spread. Well before World War II broke out, the Nazi party had unmoored Germany's democracy.

Today, you also must look at the immediacy of communication, she adds. Social media and 24/7 news reach across geographic boundaries and operate continually to amplify anxieties of all kinds. "People are feeding off one another's fears, and it's easy for politicians to tap into that."

Her team pays close attention to emotion, which is increasing apace with the populist rhetoric — "particularly negative emotions such as anger," Tavits says. "Part of what such rhetoric does, maybe intentionally, is rouse those emotions in people, because those are emotions that can lead to action." Already, the team has drafted a paper analyzing the red hearts and raging orange emojis used to respond to various election results. "Electoral losers are more likely to express anger, which could be for two reasons: One, this populist rhetoric is increasingly present, and two, polarization has people moving so far from each other in their views that the other side is completely unacceptable to them."

In the U.S., racism plays a strong role in both populism and polarization, as does the anti-immigrant sentiment and the other forms of bias (gender identity, religion, ethnicity, sexual expression) that are also prevalent in Europe. The common thread is one of perceived threat — which triggers fear, resentment and anger. As the project refines its analysis, the role played by different kinds of bias will need to be sorted.

How necessary is a pre-existing antipathy, anxiety, resentment or seething anger, if someone wants to galvanize populist support and trigger action? Can a skillful politician whip up a calm, contented electorate?

"It's hard to say to what extent this is strategy," Tavits notes, "and to what extent they just want to use that type of rhetoric, and anger is the byproduct." Either way, "using language we normally considered outrageous is a populist tactic, because it's anti-elitist." When someone in the political elite starts using language in a way that defies the old definition of civility and shatters its taboos, such language is seen as a strength, not a weakness. Then "the herd mentality sets in," she says. The norm-breaking behaviors have been normalized.

"In the U.S., it's impossible to separate the effects of populist rhetoric from those of polarization," she adds. "That's why we need this comparative, global approach, so we can study contexts where there are multiple parties and polarization is more easily separable from populism. In Europe, the parties using populist rhetoric co-exist with mainstream leftist and rightist parties that may or may not be ideologically polarized. France, Germany and Sweden, for example, are not particularly polarized ideologically, but they have strong populist movements."

To be clear, the team hasn't determined yet whether populism undermines democracy — it's something they want to find out. But if it does, the stakes could be high. "In Europe, often you have multiple parties and coalition governments," Tavits explains, "so even if the biggest party became populist and could potentially be a threat to democracy, it still needs partners. It has to mellow, because if nobody wants to play with you, you become a pariah, and voters soon figure out that you are incapable of actually getting anything done. So more radical parties, if they do get into government, tend to either implode or change drastically." It's hard to be anti-elitist once you become the elite.

"A two-party government like the U.S. generally works very well," she continues. "But if there's a nondemocratic actor, then other institutional mechanisms become more important as checks and balances." Multiple parties might set up a better defense mechanism, Tavits says. "But even the two parties in the U.S. are aggregates of multiple factions, and the scenario where one of those factions takes over the entire party — in theory — isn't very likely." Nonetheless, it can happen. And when it does, "it's very dangerous."

As soon as the project's challenges are sorted and its methods validated, the team "can start using this wealth of data to answer substantive questions," Montgomery says. "First, descriptively: Which parties use populist rhetoric, which politicians, in response to what events, and how does it spread? Who copies whom? That will help us get a better handle later, when we start explaining the spread, usage and effects."

To understand the effects of populist rhetoric on voters, they plan to do a separate data collection, using cross-national surveys to ask voters a series of questions. First, they will measure the voters' emotional arousal, then the effect of that emotion on their willingness to take action.

This project will also help assess social media's influence on politics. "Political rhetoric is more visible on social media," Montgomery says, "but it's not clear that social media has caused the increase. Having this data will make its effect clearer, because there are still countries where the internet is just now coming on."

Meanwhile, this dataset will open myriad other research opportunities, because it holds clues to language, culture, beliefs, bias, social connections, group behavior, thought, emotion and political power — how it is organized, how it is amassed, how it fades, when it flares again.

AS SOON AS THE PROJECT'S CHALLENGES ARE SORTED AND ITS METHODS VALIDATED, THE TEAM "CAN START ... TO ANSWER SUBSTANTIVE QUESTIONS. FIRST, DESCRIPTIVELY: WHICH PARTIES USE POPULIST RHETORIC, WHICH POLITICIANS, IN RESPONSE TO WHAT EVENTS, AND HOW DOES IT SPREAD?"

— JACOB MONTGOMERY

stretching th oundaries

With ambitious exhibitions and savvy acquisitions, the Mildred Lane Kemper Art Museum makes an international mark.

LIAM OTTEN, BFA '93

Photo: Joshua White/JWPictures.com

Previous spread: For her exhibition at the Mildred Lane Kemper Art Museum, German artist Katharina Grosse created three large fabric pieces, each measuring more than 20 feet tall, for the Saligman Family Atrium. The pieces feature digitally manipulated photographs of Grosse's workspace and painting process.

Right: An ambitious trans-Atlantic collaboration, "Katharina Grosse Studio Paintings" debuted at the Kemper Art Museum last fall. It is now on view at the Kunstmuseum Bern, Switzerland's oldest art museum, through June 25, and will travel to Germany's Kunstmuseum Bonn in spring 2024.

COLORS FLOAT ON A GENTLE BREEZE. FABRIC SHEETS TOWER LIKE CANYON WALLS. PLUMES OF RED AND GOLD ERUPT WITH ALMOST GEOLOGICAL FORCE.

Over the last three decades, Katharina Grosse has emerged as one of Germany's most prominent contemporary artists, known for sprawling murals, installations and other in situ works that investigate the nature of color and its capacity to destabilize visual hierarchies. "Color can appear anywhere," Grosse explains. "It is independent from any location. ... Color gets to you like noise, a scent or a taste."

In 2016, the Mildred Lane Kemper Art Museum at Washington University commissioned Grosse to create a vast, two-story abstract mural for the Gary M. Sumers Recreation Center as part of the museum's Art on Campus program. Last fall, the Kemper Art Museum presented "Katharina Grosse Studio Paintings, 1988-2022: Returns, Revisions, Inventions." The first survey to highlight the artist's work on canvas, the exhibition was both a yearslong curatorial effort and a demonstration of the museum's commitment to work by contemporary and international artists.

"Katharina Grosse is one of the most stimulating, creative and thoughtful painters working today," says Sabine Eckmann, the William T. Kemper Director and Chief Curator at the Kemper Art Museum, who organized the exhibition in collaboration with the artist. "Her practice stretches the boundaries of painting in all directions."

Currently on view at the Kunstmuseum Bern in Switzerland, "Katharina Grosse Studio Paintings" featured 37 large-scale canvases as well as an interactive installation commissioned for the exhibition (see previous spread). A bilingual scholarly catalog, co-published by the Kemper Art Museum and Hatje Cantz, includes more than 100 additional images and serves as the first in-depth reference on Grosse's studio painting.

The exhibition was organized into two thematic sections. "Returns, Revisions, Inventions" (from which the overall exhibition takes its title) highlights Grosse's intuitive process and the ways shape, color and texture can echo across multiple canvases.

This section also featured some of Grosse's earliest use, in the late 1990s, of commercial paint sprayers. At a time when international gestural painting was largely dominated by male painters, Eckmann notes, these works contested the importance of direct connection to the artist's hand, and thus the supposed link between painting and artistic subjectivity.

The second section, "Fissures and Ruptures," emphasized the ways Grosse challenges the alleged autonomy of painting, stretching its boundaries and physical properties.

For example, since the early 2010s, the artist has combined her use of sprayers with stencils to produce spatial voids that paradoxically become active players on the visual field. Compressed, fractured and destabilized, these paintings-within-paintings defy all sense of chronological order.

More recently, Grosse has upended analogies between art and nature by adhering tree branches to the canvas and spray-painting over them. In other works, she has experimented with slashed canvases that both reveal and incorporate the white museum walls. "Colors are relational elements," Grosse observes. "They look a certain way only in relation to something else. But there's no hierarchy. Color can turn any direction at any moment."

"Color can appear anywhere. It is independent from any location. ... Color gets to you like noise, a scent or a taste."

— Katharina Grosse

Photo: Joshua White/JWPictures.com

Installation view, "Katharina Grosse Studio Paintings, 1988–2022: Returns, Revisions, Inventions."

Scan code for a video of Katharina Grosse discussing her work.

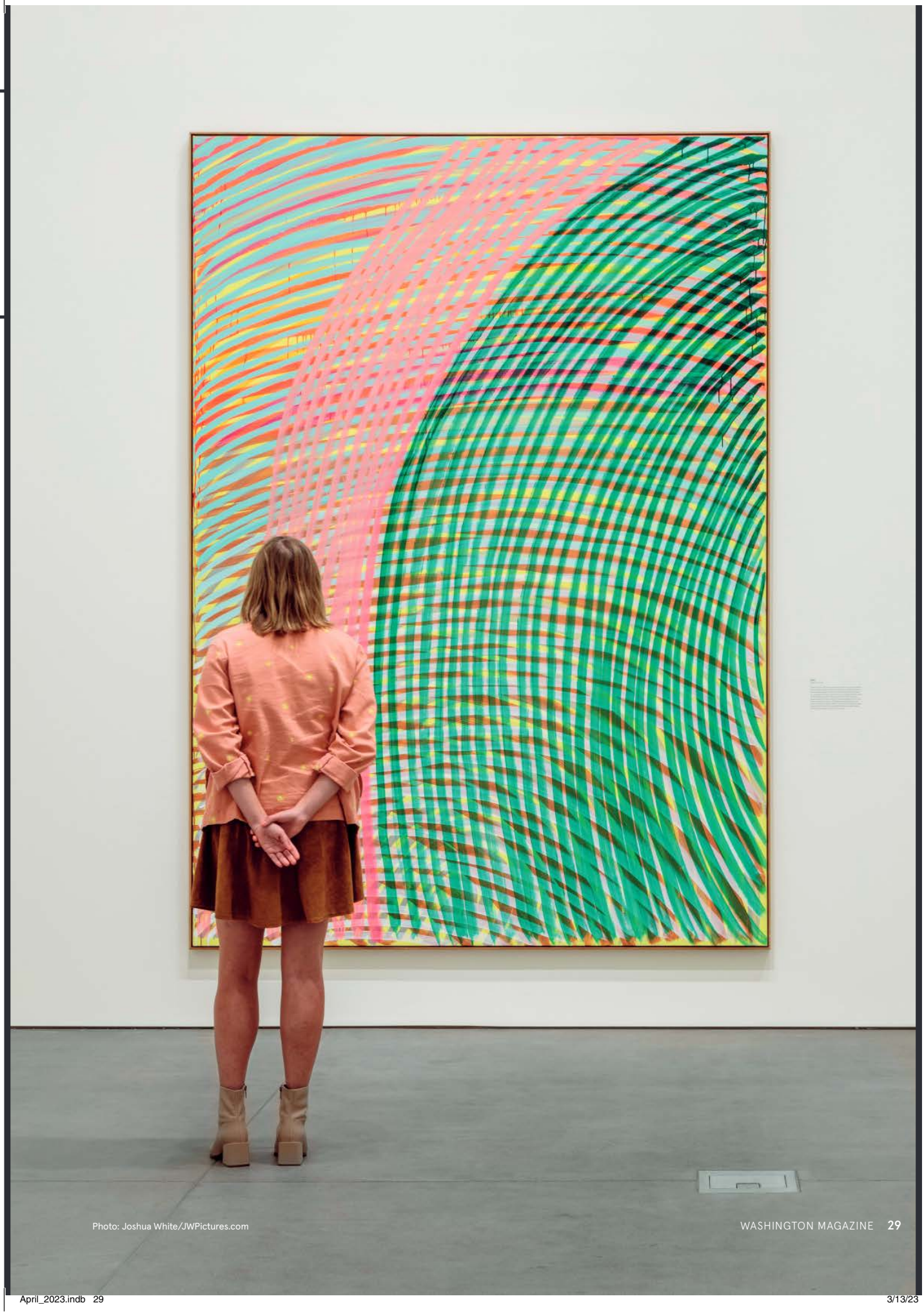


Photo: Joshua White/JWPictures.com

"Modernism, at its core, is an aesthetic response to the conditions of modernity. That response takes many forms. ..."

— Perrin M. Lathrop, co-curator of "African Modernism in America"

African Modernism in America

Seven figures glide through a rolling evening forest. Each bears a wedding offering of mbege, a beer made from fermented bananas, carried in gourds atop their heads.

In "Men Taking Banana Beer to Bride by Night" (1956), Tanzanian-born painter Sam Joseph Ntiro deploys a muted palette and swirling, almost-abstract brushstrokes to present a traditional scene of the Chagga people. The effect is pastoral and radical — a hopeful premonition for Tanzania's coming independence.

Now on view at the Kemper Art Museum, through Aug. 26, the painting is among the many highlights of "African Modernism in America." The exhibition, organized by the American Federation of Arts and Fisk University Galleries in Nashville, is the first traveling survey to explore the complex relationships between African and African American artists, patrons and cultural organizations during the 1950s and 1960s, amidst Africa's tumultuous independence period.

"Modernism, at its core, is an aesthetic response to the conditions of modernity," says Perrin M. Lathrop, assistant curator of African art at the Princeton University Art Museum, who co-curated the exhibition, with Nikoo Paydar and Jamaal Sheats, while at Fisk. "That response takes many forms. It can emerge from exposure to different cultures or different visual media, but it also arises from traditional cultural practices that, with ingenuity and creativity, incorporate a sense of contemporaneity."

Encompassing more than 70 artworks by nearly 50 artists, "African Modernism in America" opens with an exploration of the Harmon Foundation, which in the mid-20th century was a leading U.S. promoter of African diaspora art. For example, in 1960, the foundation helped arrange for the Museum of Modern Art in New York to acquire Ntiro's "Men Taking Banana Beer to Bride by Night" — the first work by an African artist to enter MoMA's permanent collection.

The exhibition also explores the continent-wide networks of artists, galleries, journals and education programs that supported postcolonial African artists. For example, Demas Nwoko and Uche Okeke both studied at the Nigerian College of Arts, Science and Technology in Zaria, where faculty included Etso Clara Ugbodaga-Ngu. Nwoko and Okeke also exhibited together at the Mbari Artists and Writers Club in Ibadan, which later hosted an exhibition by the American artist Jacob Lawrence, during the latter's first visit to Nigeria.

Other sections explore how African and African American artists navigated Cold War politics, decolonialization and the U.S. civil rights movement. For example, John Biggers' "Kumasi Market" (1962) — a painting once owned by Maya Angelou — reflects the American artist's travel through Ghana in 1957, the same year that nation gained independence from Great Britain. "Yoruba Forms #5" (1969) by David Driskell, longtime head of Fisk's art department, is informed by the artist's reverence for traditional African sculpture and deep knowledge of global aesthetic philosophies.

(Opposite page, top) Sam Joseph Ntiro, "Men Taking Banana Beer to Bride by Night," 1956. Oil on canvas, 16 1/8 x 20 inches. Museum of Modern Art, New York, Elizabeth Bliss Parkinson Fund. © Museum of Modern Art / Licensed by SCALA / Art Resource, NY. Courtesy American Federation of Arts.

(Opposite page, bottom) John Biggers, "Kumasi Market," 1962. Oil and acrylic on Masonite board, 34 x 60 inches. Collection of William O. Perkins, III © 2022 John T. Biggers Estate. Licensed by VAGA at Artists Rights Society, New York. Estate represented by Michael Rosenfeld Gallery. Courtesy Swann Auction Galleries and American Federation of Arts.

(Above) Suzanna Ogunjami, "A Nupe Princess," c. 1934. Oil on canvas, 20 x 15 1/2 inches. Fisk University Galleries, Nashville, Gift of the Harmon Foundation. Courtesy of American Federation of Arts.

Photo: Joshua White/JWPictures.com

New acquisition highlights

In August 2009, artist and activist Ai Weiwei was arrested in Chengdu, China. As police escorted him into a hotel elevator, Ai snapped a selfie. The image, later shared on social media, quickly became one of the best-known examples of political resistance in 21st-century art.

As part of its commitment to collecting work by contemporary artists, the Kemper Art Museum recently acquired a monumental version of this now-iconic work. Measuring more than 12 feet wide by 10 feet tall, "Illumination" (2019) reproduces Ai's selfie in colorful Lego bricks. "Legos are a playful and broadly accessible commercial medium," Eckmann says, "and thus an effective tool for spotlighting political injustices."

Viewed from a distance, or in reproduction, "Illumination" can be difficult to distinguish from its source. Both depict the artist and a friend, musician Zuoxiao Zuzhou, flanked by officers in a hotel elevator, camera flashing like a halo overhead. But as the viewer moves closer, colors grow more saturated. Shadows along the artist's cheek and forearm are revealed as solid blocks of candy-like pink, yellow and orange — variously suggesting pixels, Post-Impressionist pointillism and Ai's long-running engagement with Pop Art.

Other recent acquisitions include "Eclipse" (2020), a digital print by Brooklyn artist Chitra Ganesh, which depicts two figures, possibly mother and daughter, standing by an arched window. The taller figure's head consists of pink and red flowers framed by a translucent sphere resembling a moon. Like much of Ganesh's practice, the artwork combines South Asian iconography with comics, surrealism, queer theory, Bollywood posters and speculative science fiction to foreground the perspectives of marginalized communities.

Jess T. Dugan's portfolio of photographic portraits "Every breath we drew" (2022) represents inclusive notions of gender and sexuality, exploring the power of identity, desire and connection. Complementing these artworks are additional acquisitions by Buckminster Fuller, Sharon Lockhart, Tuan Andrew Nguyen and Rose B. Simpson, among others.

(Opposite page) Ai Weiwei, "Illumination," 2019. Lego bricks on baseplates, mounted on four aluminum panels. University purchase with funds from William T. Kemper Foundation, 2022.

(Above) Chitra Ganesh, "Eclipse," 2020. Digital print, 2/3, 59 x 42 inches. University purchase, Arthur L. and Sheila Prensky Fund, 2022.

(Left) Jess T. Dugan, "Shira and Sarah," from the portfolio "Every breath we drew," 2022. Ink jet print on Hahnemuhle Photo Rag Pearl paper, 9/20, 20 x 16 inches. University purchase with funds from Nancy and Ken Kranzberg, 2022.

A WARMING WORLD NEEDS BETTER BATTERIES

For the green energy revolution to be successful, scientists must develop more cost-effective and sustainable battery technologies. Researchers in the McKelvey School of Engineering are spending their energy on just that.

■ STORY BY GERRY EVERDING | PHOTOS BY WHITNEY CURTIS

AS NATIONS AROUND THE GLOBE CONSIDER WAYS TO STAVE OFF CLIMATE CHANGE, THE UNITED STATES IN 2022 PASSED LEGISLATION TO INVEST BILLIONS IN NEW GREEN ENERGY TECHNOLOGIES: SOLAR AND WIND POWER, NEW TRANSMISSION GRIDS, ELECTRIC VEHICLES AND ADVANCED BATTERY STORAGE SYSTEMS.

It sounds promising, but we've got a long way to go. Despite producing more and more renewable energy each year, the United States still gets only 9.2% of its electricity from wind and only 2.8% from solar. About 61% of our electricity comes from fossil fuels, with roughly two-thirds of that coming from natural gas and one-third from coal, according to 2021 estimates by the U.S. Energy Information Administration.

The road to a clean, green energy future is long with many twists and turns, U-turns and obstacles, but it's one that Washington University researchers are traveling in hopes of building better and more sustainable batteries. In Vijay Ramani's lab, for example, scientists are working on large-scale batteries, the ones that must be built into the power grid so that we can actually make use of our abundant wind and solar resources. And in Peng Bai's lab, they are looking at batteries that take a sip from that grid and then set us free: the batteries in our electric vehicles and mobile devices.

While green energy may be the only viable solution to a looming climate catastrophe, using current technologies presents us with tough decisions and unpleasant trade-offs.

For starters, many raw materials critical to green energy technologies are already in short supply and are extracted through unsustainable and decidedly environmentally unfriendly mining processes. Surging global demand for key battery components — such as lithium, graphite, nickel and cobalt — has sparked a wave of new mining proposals aimed at extracting critical minerals from remote, environmentally fragile corners of the globe.

Without rapid breakthroughs, the ecological and human health consequences of green energy development could rival those left behind by centuries of reliance on coal, oil and gas.

"There's no silver bullet that's going to provide a quick fix," says Ramani, a professor of energy, environmental and chemical engineering in the McKelvey School of Engineering. "I work in renewable energy, and I've worked with batteries all my life. I would love to have better energy technologies deployed right now. But as a chemical engineer who understands the concept of scale, I can guarantee you that it's going to take some time before we have that.

"It's a complex game. The economics have to work out."

POWER WHEN IT'S NEEDED MOST

Ramani, who also serves as WashU's vice provost for graduate education and international affairs, has been exploring alternative energy since 2001 when he became fascinated with hydrogen fuel cells as a doctoral student in chemical engineering at the University of Connecticut.

He continued his green energy research as a professor at the Illinois Institute of Technology until 2016, when he joined WashU as the Roma B. & Raymond H. Wittcoff Distinguished University Professor.

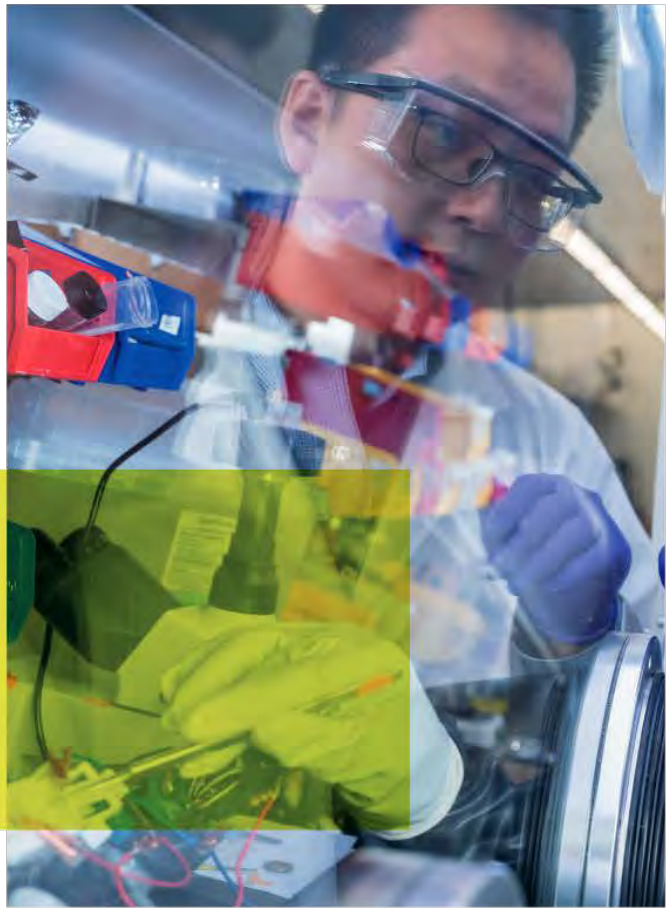
Ramani is one of many researchers at McKelvey pursuing new technologies to reduce harmful effects of fossil fuel emissions and speed the transition to cleaner, more environmentally friendly forms of energy generation, storage and transmission.

Specifically, he and his McKelvey colleague Bai, an assistant professor also in the energy, environmental and chemical engineering department, are focused on an area of research that is pivotal to the success of the green energy revolution: the critical need for more cost-effective and sustainable battery technologies. Each directs a team of about 10 researchers, mostly doctoral students and postdoctoral research assistants, who are training for careers in the green energy sector.

Ramani's lab is exploring development of massive, grid-scale batteries that will be essential for the longer-term storage of electricity generated from wind and solar. Unlike the baseline electricity from fossil fuel and nuclear power plants, which can be generated continuously, power from wind and solar is intermittent, meaning it must be used immediately to meet consumer demand or somehow stored for later use. Dark nights and calm days can make it difficult or impossible to generate, transmit and distribute power from renewable sources reliably, so mega-capacity, grid-level storage will become more and more necessary as we move away from fossil fuels.

"I would love to have better energy technologies deployed right now. But as a chemical engineer who understands ... scale ... it's going to take some time before we have that."
— Vijay Ramani

On the previous spread: Peng Bai and his lab team are researching sustainable battery technologies on the smaller scale, those found in our phones and electric cars. On this spread: Vijay Ramani (center photo, right) and his lab team are exploring the development of massive, grid-scale batteries that will be essential for longer-term storage of wind- and solar-generated electricity.



On this spread: Among the most problematic components of standard types of lithium-ion batteries are the lithium itself and graphite. In Bai's lab, researchers are working on promising new technologies: a lithium-ion battery that works without graphite and a sodium-ion battery that works without lithium.

Ramani and his research team, including some of his current and former students, now hold patents on several innovations that pave the way for the commercial rollout of new, higher-performance versions of these large batteries. Their battery solution, which uses titanium and cerium to replace the costly vanadium used in most near-market redox flow technologies, has the potential to meet federal cost-efficiency standards for grid-scale energy storage systems. His team recently received a $2 million federal grant to explore how the invention could be derisked as a prelude to scale-up for commercial applications.

"Solar energy generation has become cheap, as has wind energy. But you can't always rely on either source to generate power when you might need it most," Ramani says. "You have to figure out some way to store massive amounts of energy for days at a time, because there's no way you can run an entire power grid on intermittent energy sources. It's impossible."

Grid-scale battery solutions like Ramani's would give us a way to fill in the gaps.

SMALLER BATTERIES NEED TO STEP UP, TOO

On the other end of the rechargeable battery spectrum, Bai and his team are focused on the slim, compact batteries that power our mobile phones and laptops; the chunky, block batteries behind our cordless power tools; and the still larger, multi-cell battery packs featured in our emission-free electric vehicles.

Bai earned a bachelor's degree in automotive engineering in 2007 and a doctorate in mechanical engineering in 2012, both from Tsinghua University in China. He also studied chemical engineering for several years as a research scientist at Massachusetts Institute of Technology.

Since joining WashU in 2017, his research has explored cleaner, more efficient and safer alternatives to lithium-ion batteries, now one of the most common technologies in the mobile battery marketplace.

Lithium-ion batteries, first commercialized in the 1990s, have a reputation for dependable service over many use cycles. But these advantages come with a battery chemistry that relies on an array of minerals that can be difficult to extract and resource-intensive to process.

Among the most problematic components of these standard types of batteries: the lithium itself, which is harvested from brines pumped

from groundwater under the Andes Mountains of South America, and graphite, which is mined almost exclusively in China. Refining graphite requires extreme heat, often supplied by burning energy from coal-fired power plants, and treatment with hydrofluoric acid, a process that can be dangerous to surrounding ecosystems.

"Although lithium-ion batteries hold the promise to decarbonize transportation, the mining and processing of battery-grade graphite at the scale of close to a million metric tons each year have strained our ecosystems through pollution and greenhouse gas emissions," Bai says. "The situation will only get worse with the rapid expansion of battery production worldwide — until we take a simple action: removing graphite from batteries."

Bai's lab has made recent discoveries that accelerate doing that and more — developing a lithium-ion battery that works without graphite and a sodium-ion battery that works without lithium. Bai and others have found potential substitutes scattered across the periodic chart.

"You can make good batteries by incorporating lithium, graphite, cobalt, nickel and other minerals that are not so abundant, but it will have an environmental and social price," Bai says. "We are investigating how lithium batteries can be improved or how alternatives to them can be developed, so we can produce energy-dense batteries that are both safer for the user and more sustainable for the planet."

U.S. LEGISLATION IS DRIVING CHANGES

In the U.S., decades of improved environmental regulations and green activism have forced many of our dirtiest mining and refining operations to move overseas, effectively outsourcing the ecological and social costs of battery production.

In 2022, President Joe Biden signed Democrats' landmark climate change and health-care bill into law. Among many other things, the Inflation Reduction Act (IRA) aims to reverse that outsourcing trend by offering generous consumer rebates for the purchase of electric cars, batteries and other green technologies with components substantially mined or manufactured in the U.S.

Michael Wysession, professor of earth and planetary sciences in Arts & Sciences and an expert on energy use, is so confident that the IRA will motivate big changes that he dubs 2023 "The year of the battery."

"President Biden's centerpiece legislation is a game-changer in many areas of renewable energy," Wysession says. "One of the major challenges to a fully renewable-energy future of wind and solar power is energy storage. Just a few years ago, people were looking toward large earth-works projects, such as pumped hydro or compressed air in underground caverns. Those discussions have been largely shelved because of the incredibly rapid advances and dropping prices of battery technologies."

For example, from 2010 to 2022, the cost for enough electric vehicle lithium-ion batteries to store a kilowatt-hour (kWh) of energy (which is the equivalent of 10 100-watt lightbulbs burning for an hour) dropped from $1,300 to just $150, in 2022 dollars, Wysession notes.

"The IRA increases the investment tax credit to 30% for solar-plus-storage and, for the first time, standalone storage facilities," Wysession says. An extra 10% credit is added for using equipment manufactured in the U.S., and another 10% is added for projects located at decommissioned fossil fuel facilities in front-line communities.

"This will counteract the 2021–22 supply chain bottlenecks and help spur U.S. development," Wysession continues. "Since the passage of the IRA, several major battery manufacturers, such as Panasonic and LG, have already announced plans to build factories in the U.S."

Ramani is less sanguine about the immediate changes to expect, but he still sees great opportunity in battery and energy storage research and development in coming years.

GREAT GRIDS

On the bright side, both wind and solar power can be cheaper to produce than power from natural gas, so utilities have an economic incentive to consider making the switch. Many utilities are eager to use renewables in the grid in whatever increments they become available, especially for replacing the energy that comes

"We are investigating how lithium batteries can be improved or how alternatives to them can be developed, so we can produce energy-dense batteries that are both safer for the user and more sustainable for the planet."

— Peng Bai

Peng Bai says his students leave WashU well qualified to become professors and pursue careers in academia, but he also encourages them to consider jobs in industry.

from peaking power plants that generally run only when there is a high demand for electricity.

"You can't run an electric grid with this sort of uncertainty, though," Ramani says. "You can use intermittent sources on a percentage basis as long as it's less than 10%, 15%, 20%. The existing grid has enough flexibility to take it when it comes and leave it when it doesn't. But if you want 90% solar and wind, as some folks are proposing, that's not going to happen unless you have a storage technology."

And the storage capacity needed for a 100% renewable energy grid would be truly enormous. "I'm not talking kilowatts or megawatts or 1,000 megawatts, which is a gigawatt. I'm talking hundreds of gigawatts and thousands of gigawatt hours," Ramani says. "That's the scale of storage we'll need for a renewable-based electric grid."

Right now, the world's top 10 largest power station batteries are all built using lithium-ion chemistries, which have relatively short charge-discharge cycles. Most provide limited back-up power for several hours or less to meet small surges in demand or respond to emergencies when a storm or wildfire takes down parts of the grid.

"That's not near long enough for a renewable energy grid," Ramani says. "For renewables, you need a system that can store at least 8 to 10 hours, enough to get solar power through the night, especially if everyone's home charging their electric vehicles."

Redox flow batteries, such as the one recently patented by Ramani and his group, could help meet the demand for large-scale storage. Their design creates energy-dense liquid electrolytes that can be pumped into nearby storage tanks. Energy-holding capacities can be scaled simply by increasing the size or number of storage tanks. Prototype systems prepared by companies working in this space, which are now about the size of a shipping container, could be expanded to store energy in tank farms as large as sports arenas.

Ramani's flow battery uses a combination of titanium and cerium metals, which are more abundant and cheaper than the vanadium used in other, more established, flow battery chemistries.

It may be a few years before their titanium-cerium flow battery is ready for large-scale commercial applications, but Ramani and his colleagues are hoping to have a pilot version scaled up and ready for demonstration within a year. His group, along with Ben Kumfer, a research assistant professor and colleague, are working with the St. Louis–based electrical utility Ameren to model the use of such batteries in conjunction with gas-fired power plants, an exciting local project that is funded by a two-year, $500,000 federal grant.

NEXT-GEN BATTERIES FOR CARS

Bai's research aims to better understand the chemical reactions, known as thermal runaways, that can cause energy-dense lithium batteries to heat up uncontrollably. In rare cases, these reactions have triggered dangerous battery explosions and fires in vape pens, mobile phones, laptops and electric vehicles.

By listening to the electrochemical and physical forces at the heart of battery functions, his team has documented subtle mechanisms that determine how these reactions play out at the level of individual particles, ions and electrons.

Working with Bingyuan Ma, one of his doctoral students, Bai has developed a transparent capillary cell that allows spider web–thin working models of simple, single-cell batteries to be observed under a microscope in real time. The research links some little understood battery failures to chemical reactions that can be prevented with subtle changes in battery design and materials.

As detailed in a paper that Bai and Ma published in 2021, their lab has used these insights to develop a stable sodium-ion battery prototype with potential to end battery industry reliance on both lithium and graphite. Since traditional lithium-ion batteries use 10 to 30 times as much graphite as lithium, graphite-free sodium batteries have the potential for much higher energy densities, allowing even more energy to be packed into a battery of similar size and weight. Since sodium, the same element in table salt, is both abundant and cheap, the raw material costs for sodium batteries would be less than 1% of those for lithium batteries.

Ma, who completed an internship in battery development with Tesla, has an offer to re-join the electric vehicle (EV) manufacturer when he completes his doctoral degree. Another of Bai's students, Shubham Agrawal, who graduated from WashU in 2022 with a doctorate in chemical engineering, now works as a battery modeling engineer with the EV division of Ford Motors.

Agrawal is often surprised at how little most consumers seem to know about the basic workings of EVs. Many don't realize that EV batteries often comprise as many as a thousand small, AA-size batteries cobbled together into computer-monitored, multi-cell packs. Nor do many understand that EV batteries are mounted along the car's chassis at wheel level, leaving the area under the front hood once occupied by an internal combustion engine to be used as extra trunk space.

Agrawal, who evaluates battery technologies as part of his job at Ford, says the lithium-ion batteries he studied in Bai's lab will remain the major energy source for commercial applications for several years. However, Ford and other manufacturers, he notes, keep an eye out for upcoming options to provide even safer and cheaper batteries than the now most popular nickel-manganese-cobalt–based batteries. He expects EV performance to improve dramatically as new advances come online.

"In the next five years, you will definitely see EVs going 600 or 700 miles on a single charge," Agrawal says. "Charging times will be reduced to 15 to 20 minutes, and battery life definitely will increase as promising new chemistries come online. Even the charging stations are becoming more available, so I think the customers will be very happy with the progress we're making."

Bai says his doctoral students leave the university well qualified to become professors and pursue careers in academia, but he also encourages them to consider jobs in industry. "Our car and battery companies are bringing these innovations directly to their production lines, so that's where our students' precise understanding of electrochemical science can play a significant role," Bai says. "That's where the fundamental science behind next-generation batteries will really be implemented."

MAKING THE CASE FOR TRANSITION

Governments around the world have a huge role to play in expanding and encouraging a transition to renewable energy. They could choose to expedite the transition, too, by taxing fossil fuels, subsidizing renewables and allowing public utilities to raise rates to cover switchover costs. But Ramani has concerns about how quickly these changes can occur, and about how realistic it is to expect countries like India and China, with a high growth trajectory, to participate at this point.

"If you want to replace all fossil-based assets with solar and wind and storage, that's an awful lot of investment, and that's my worry," Ramani says.

Ramani expects the renewable energy transition to happen gradually over decades. How fast it happens will depend almost entirely on how average consumers view the comparative cost of renewable options.

"I think it's important that we start moving in the right direction as fast as we can, as rationally as we can. But I think it's equally important to be as honest as we can with people as to the pros and cons of our current green energy technologies," Ramani says.

"We need to look at all these alternative technologies and think productively about how we can bring them to fruition," he says. "We need to paint the whole picture, let the chips fall where they may, and the most cost-competitive technologies will win. In the end, it's the economics that will dictate where we end up."

"Our car and battery companies are bringing these innovations directly to their production lines, so that's where our students' precise understanding of electro-chemical science can play a significant role."

— Peng Bai

Next

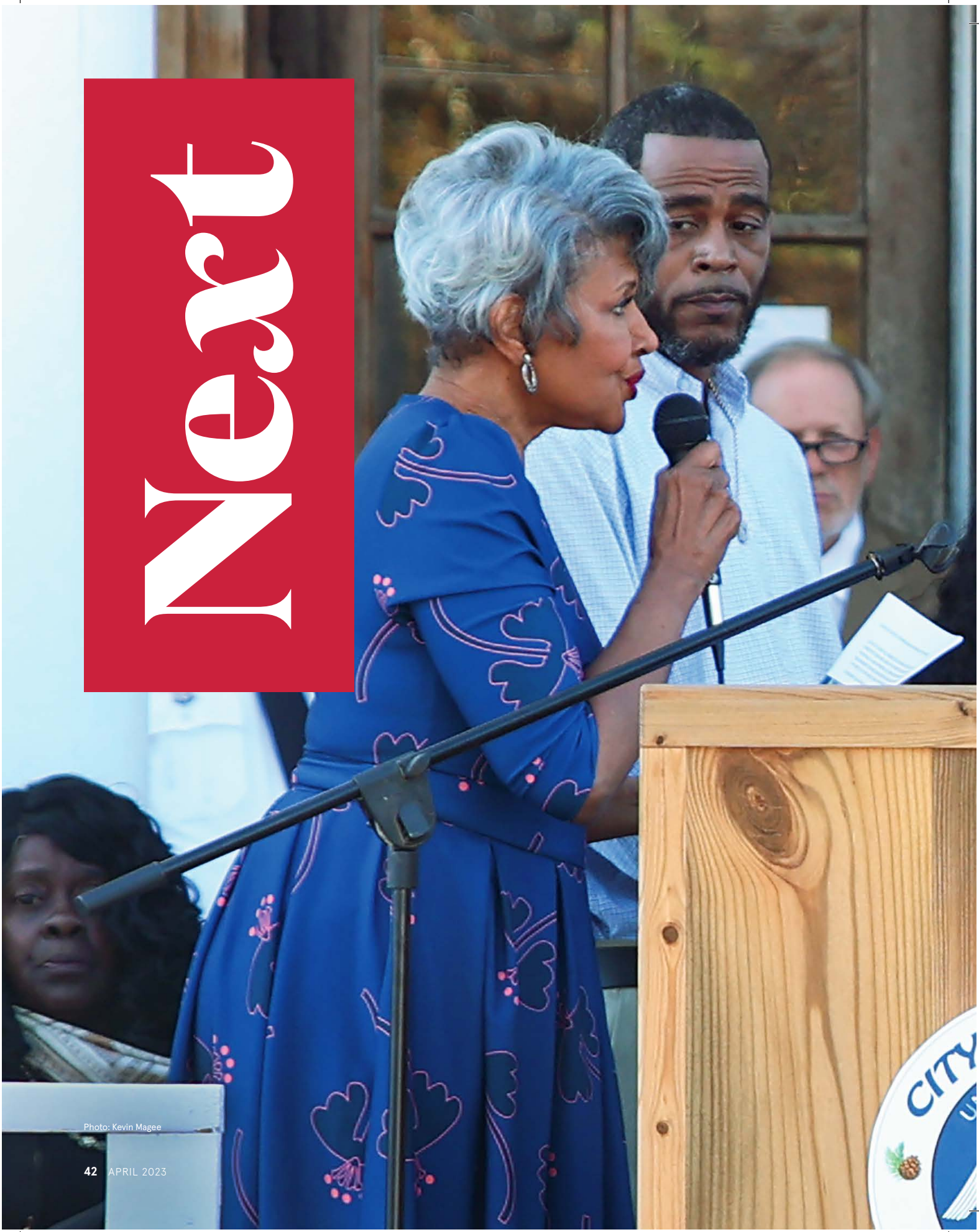


Photo: Kevin Magee

THE WORLD OF OUR W SHU LUMNI

Hello, Mr. Mayor

Last November, **Tyrin Truong, AB '21,** was elected mayor of Bogalusa, Louisiana, the youngest mayor in the town's history. A former Student Senate president who majored in African and African American studies, Truong says he decided to run for office in his hometown after hearing too many complaints about the quality of life, including crime, a lack of youth programs and struggling businesses. Those complaints are now his priorities, as he was sworn in Jan. 8, 2023. Read more of his incredible story online: **source.wustl.edu/2023/02/mayor-truong/**.

Bringing her folding chair to the table

Nisha Patel's mission is to help families with low income have a voice and achieve upward mobility.

Brown School alumna **Nisha Patel, MSW '98,** is an expert on social and economic mobility, and she has spent more than two decades at the forefront of the philanthropic and political landscape, leading and implementing initiatives that increase economic opportunities for families with low income.

Currently, Patel runs a consulting business, and she works with clients to develop philanthropic strategies to increase community-centered economic opportunity. She also serves as a senior fellow at the Social Policy Institute at Washington University. Previously, she served in the Obama administration as director of the Office of Family Assistance.

Patel traces her interest in social and economic mobility back to her own family history. Her grandparents migrated from India to Uganda; her parents moved from Uganda to England; and when she was a child, her family immigrated to the United States. "The immigrant or American dream is that economic mobility is this upward, sloping line. But the reality is, it can be more like a zigzag," Patel says. "And that's been true for my family.

"Each move was with that dream, but sometimes circumstances happened, like the time a dictator took over and my grandparents became refugees," she says. "So, you can move from poverty to middle class, and then structural forces can pull that out from under you. Or they can prevent you from getting there in the first place."

In 2016, Patel took an even closer look at some of the structural forces that impede economic mobility in the U.S. when she served as executive director of the U.S. Partnership on Mobility from Poverty at the Urban Institute. This partnership brought together 24 experts from academia, practice, philanthropy, faith communities and the private sector to produce recommendations to improve economic mobility. But Patel was not satisfied with leaving the conversation to this group.

"We've got brilliant people around the table, some of whom, including myself, have experienced poverty at some point in their lives, but political, social, economic contexts change," Patel says. "The thing that is often missing — and this was really grounded for me at the Brown School — is that the people whose lives are impacted most are often left out of the conversation."

During Patel's first week as a Brown School student, President Bill Clinton signed the Welfare Reform Act. In the wake of the new law, each state had to figure out how it was going to implement the policy, and Patel's practicum brought her to the forefront of the conversation. "There were hearings in Jefferson City, Missouri, and I was working for a grassroots organization arranging for parents to testify and share their stories.

"So, this whole idea of who's not at the table, whose perspective is not invited, I got grounded in that. I saw firsthand how disrespectful some of these legislators were to the parents testifying about their experiences," Patel says. "I'm grateful, every single day, that I had that experience.

"There's this quote by Shirley Chisholm: 'If they don't give you a seat at the table, bring a folding chair.' And now because of my career, I'm often handed a seat at the table," says Patel, "but I still bring my folding chair, because I see it as my role to give that seat to someone who wouldn't otherwise have a voice at the table."

Patel's Jeff City experience was at the forefront of her mind when she accepted the role of executive director of the U.S. Partnership on Mobility from Poverty. Instead of meeting at the Harvard offices of commission members or in D.C., at Patel's insistence, the partnership spent time in more than 30 communities around the country. ("It was a non-negotiable for me when I took the job," she says.)

"We broke bread with people experiencing poverty and compensated them for their time because their knowledge is as valuable as these experts," she says.

Ultimately, the partnership came up with 13 solutions and five big strategies to address the structural forces that impede economic mobility; these are outlined in their report "Restoring the American Dream: What Would It Take to Dramatically Increase Mobility from Poverty?"

Today, Patel would put a finer point on the recommendations. "In the U.S., the lack of social and economic mobility for many people is undergirded by structural racism. Until we address that, we will not be able to make the progress we'd like."

■ REBECCA KING PIERCE

WHO

Nisha Patel, MSW '98

CURRENT HOME

Washington, D.C.

AN ENTREPRENEUR AND INNOVATOR

"In my 25-year career, I've had only one job that someone else had before me, and that was my political appointment in the Obama administration," Patel says.

POLICIES THAT GIVE HER HOPE

The Child Tax Credit, which was a federal benefit that put money in families' pockets during the pandemic. "The Social Policy Institute found in a national survey that families were using this money on basic needs like food and housing. It cut childhood poverty almost in half. Who wouldn't be happy about that?"

Photo: Andres Alonso

For the love of the game

Matt Bayer crunches numbers and analyzes data to help St. Louis' beloved Cardinals make the best baseball decisions.

"Are you like the Jonah Hill character in *Moneyball*?"

Matt Bayer, AB '11, has heard this question hundreds of times. His response? "Yes, I am. But it would have been more fun if the character had been played by Brad Pitt!"

Bayer works as project director of baseball development for the St. Louis Cardinals, a job similar to the one portrayed by Hill in the 2011 film *Moneyball*.

"That movie came out 12 years ago," Bayer says. "It's ancient history, a completely different world from what we're doing now."

Bayer's job is to oversee the day-to-day operations of the Cardinals' baseball research and development group — and to organize the analysis of data that's become a part of the game of baseball and most every other professional sport.

"For all the baseball decisions the Cardinals make, we have large datasets that we need to turn into usable information," Bayer says. "I work with other groups within our baseball operations team to set priorities, help with analytics projects and try to make those decisions easier."

At WashU, Bayer majored in mathematics and economics, both in Arts & Sciences, while playing baseball for four years — all experiences that align perfectly with what he's doing now. "It's not just numbers in a spreadsheet," Bayer says. "If I had to describe my job in two words, I'd say 'automate' and 'synthesize,' which is what we're doing with the data. Every game generates so many numbers. How do we automatically get them into our system and how do we automatically and quickly get the analysis to the coaches and players who need it? How do we present the data so that it's actually usable?"

And every day, he gets to work in an office inside a Major League Baseball stadium.

"I'm very competitive, so I want to help the team win," he says. "It's rewarding because the Cardinals are such an important part of St. Louis. I get to do something I love — and I get to see tangible results."

He hopes to keep moving forward in his baseball career.

"Most of the jobs I've had within baseball have not really existed before," he says. "Big data in baseball is such a new thing. I want to see where I can be helpful and continue to grow."

Bayer lives in Webster Groves, Missouri, with his wife, **Betty (Gibson) Bayer, AB '11,** and their two children, ages 5 and 3. He describes his life now as a commercial for WashU. "My wife lived across the hall from me my first year. And we still keep up with many of our friends. They live across the country, but we were able to have our own reunion last summer.

"I got a great education; I got to play baseball; and I was able to get this dream job of mine to work in baseball," Bayer says. "Everything about WashU was a great experience."

■ NEIL SCHOENHERR

WHO

Matt Bayer, AB '11

HIS WASHU BASEBALL CAREER

Bayer played four seasons for the Bears' baseball team from 2008–11 as a DH, first baseman and left fielder, and he served as a captain both his junior and senior years. In his junior season, he earned first-team *ESPN the Magazine* academic all-district honors and finished the year ranked third on the team in batting (.346) and fourth in RBIs (26).

WHAT HE DOES IN THE OFF-SEASON

"It's as busy as in-season," he says. "Regular hours, but still plenty of work. We provide information for off-season transactions, such as trades or signing free agents, as well as help the coaches in preparation for the MLB and minor league seasons."

Photo: Dan Donovan

Advocating through stories

From WashU to GWU, Imani Cheers has documented the stories of the disenfranchised. Now she's teaching others to do the same.


Photo: Andres Alonso

Cultural curator **Imani Cheers, AB '02,** credits her parents with teaching her "the importance of documenting life," she says.

"My mother was a consummate scrapbooker and saved so many memories," Cheers says. And as a photojournalist and editor for *Ebony* and *Jet*, her father taught her "the power of documenting history and allowing people to tell their stories," she says. "So I wanted to give a voice to historically marginalized communities."

Both of her parents were St. Louis natives, and her mom had taught in the African and African American studies department at Washington University, so Cheers decided to pursue her storytelling career at WashU. During her undergraduate years, she directed 2002's Black Anthology and was a co-creater of *B-Side*, a student television program on Black culture. "The confidence I gained at WashU has carried me over the years," she says.

After graduating, Cheers gained directing and producing experience in various jobs around the country before heading to Howard University to earn both master's and doctoral degrees. While working as a multimedia producer at *PBS NewsHour*, she heard about a teaching position in digital storytelling at George Washington University (GWU). Although she hadn't considered teaching at this point, she felt she could "better advocate for historically marginalized communities in this position instead of just reporting about them on the news," she says.

Now an associate professor at GWU, Cheers is also the first Black female associate director of the School of Media & Public Affairs and served as interim senior associate provost for undergraduate education for the 2021–22 academic year. "It's incredibly fulfilling to see students in my advocacy-based journalism courses create their own viewpoints around issues of racism and social justice," she says.

Outside higher ed, Cheers is founder and director of "It Takes a Village: Basics of Boyhood and Messages for Manhood," a multimedia project about Black masculinity. She's currently creating a book of the images she curated for "Framing Fatherhood," the project's photography exhibit celebrating Black men and their love for their children. Cheers also is editing a book about Black women's friendship in television and film, and she's applied for a Fulbright scholarship to create a multimedia project about Indigenous women's responses to climate change.

Cheers is passionate about giving back and serves as co-chair of the Washington, D.C., chapter of WashU's Black Alumni Council. She also created a series highlighting fellow alumni, including social change activist **Brittany Packnett Cunningham, AB '06,** and **Jason Green, AB '03,** whose award-winning documentary, *Finding Fellowship*, featured Cheers as creative director.

"Throughout my work, I want to demonstrate the power of stories and the importance of listening, valuing and sharing them," Cheers says.

■ BLAIRE LEIBLE GARWITZ

WHO

Imani Cheers, AB '02

HOME SWEET HOME

As faculty-in-residence, Cheers lives on the GWU campus with her son, Isaiah.

FULL CIRCLE

Cheers served on the leadership team of former WashU Chancellor Mark Wrighton while he was interim president of GWU.

FAVORITE TV SHOW

"Living Single — Queen Latifah, Erika Alexander, Kim Fields and Kim Coles are the epitome of Black girl magic. I wrote my doctoral dissertation and first book on this iconic 1990s sitcom," Cheers says.

FUN FACT

She worked on the music video for St. Louis rapper Nelly's "Air Force Ones."

Photo: Mary Rafferty

Taking tolerance on the road

Sandy and Karen Teplitzky are committed to fighting hate through the Mobile Museum of Tolerance.

WHO

Sandy and Karen Teplitzky

FAVORITE WASHU MEMORY

"One of my strongest memories of my time at WashU is the night that the ROTC building burned, and the National Guard showed up. Being in college during those years and at a school like WashU that facilitated and encouraged independent thinking really helped frame the way I've look at things over the years," Sandy says.

WASHU LEGACY

Their son, **Brian, BSBA '02,** is a senior creative strategist for a live-event marketing agency.

Sandy and Karen Teplitzky, AB '72 and AB '74, respectively, never imagined they would befriend a former neo-Nazi. That changed when they met Jeff Schoep, once the leader of a white nationalist organization who left the movement to campaign against it. The Teplitzkys met Schoep through the work of the Simon Wiesenthal Center (SWC) — a Los Angeles–based Jewish human rights organization dedicated to tolerance education. "I was a little suspicious," Sandy Teplitzky says. "Can somebody change like that? But I consider him a very close friend now."

The Teplitzkys, who met at WashU in the early 1970s, have dedicated themselves over the past decade to work focusing on combating hate and practicing tolerance, most recently through the Mobile Museum of Tolerance (MMOT) based in Chicago. Launched in 2021 and modeled after the Friends of Simon Wiesenthal Center's "Tour for Humanity" bus — an educational initiative that has toured hundreds of schools in Canada since 2013 — the MMOT uses interactive lessons to reach students across Illinois. To date, the bus has visited more than 80 schools, with almost 13,000 students in grades 6-12 experiencing its message. Students learn about the Anne Frank story, the civil rights movement and the power that everyday people can wield for good — and ill.

"One of the films that we show is *The Power of Ordinary People*, which explains how Hitler got ordinary Germans to just go along. Our educator reminds students how to be upstanders, not bystanders, in similar situations," Sandy says. The purpose of the session, he says, is to help students realize that they can take an active role in identifying and preventing intolerance in their communities.

It's not just for students. The MMOT also offers resources for teachers, faith groups, law enforcement agencies, businesses, and community and government leaders. "Sandy and I are both Jewish, and we certainly had an extensive Holocaust education. But what I love about the content is that even I learned something new," Karen says.

Last summer, the Midwest office of the Simon Wiesenthal Center named the Teplitzkys their 2022 Spirit of Courage Awardees for being "passionate supporters and sustainers of the MMOT since its inception." In addition, Sandy is now a trustee of SWC.

Much like the namesake of the Simon Wiesenthal Center, a Holocaust survivor who went on to become a Nazi hunter, Karen's cousin, Efraim Zuroff, director of the SWC in Jerusalem, has spent his career finding Nazi war criminals and bringing them to justice.

But as the days of World War II–era Nazi hunting end, other ways of combatting hate are ever more necessary. "There aren't many Nazis to chase anymore," Sandy says. "At least not the old Nazis. But intolerance is gaining. Antisemitism, racism, homophobia. It's all growing. We must be vigilant, because if good people don't speak out, the bad people win."

■ SARA BRENES ACKERMAN

Working for the White House

Justin Vail, JD '12, goes to work every day in the office building next to the White House as special assistant to President Joe Biden for democracy and civic participation. The St. Louis native's impressive political résumé also includes serving in the Obama White House, being a longtime aide to former Sen. Claire McCaskill and clerking in U.S. district courts in Missouri and Illinois. Here, he talks about his work at the highest level of the U.S. government at this precarious moment in time.

I do feel the weight of serving in this moment in our history. President Biden often says that we are at an inflection point, globally and here at home, in trying to create a multiracial, multi-religious democracy that responds to the will of the people. Democracy has always been a work in progress. But we have, at times, taken it for granted and thought that the system was infallible, that the wisdom of our founders alone would hold us together. We came into this administration knowing the stakes and feeling the urgency, understanding that we are caretakers of American democracy. It's an honor to play a small role in that alongside so many public servants across the federal government and citizens working toward a shared goal.

I serve on the Domestic Policy Council under the leadership of Ambassador Susan Rice. The simplest way to describe it is that I assist the president on policies that restore, strengthen and expand American democracy — whether through legislative proposals, executive actions, stakeholder engagement or work with the community.

At the core of our democracy is the sacred right to vote in free, fair and secure elections. And, so, we are fighting to protect that right and to counter the efforts to undermine the will of the people that fueled the Jan. 6 insurrection and that, unfortunately, continue to fuel voter suppression efforts at the state level. We're working to ensure that it becomes easier, not harder, to vote; that we keep our elections secure; and that the American public trusts those elections.

Other issues in my portfolio are related to increasing civic participation. Americans are losing trust in their government, and they're losing trust in one another. One part of the solution is increasing opportunities for Americans to engage in their communities, to work in common purpose with others from different backgrounds, including serving through AmeriCorps. We're also working to restore the rule of law and respect for democratic institutions, including pushing for policies that guard against corruption and ensure that government works for the people.

I have good role models, starting with the president and his senior leadership team, who lead by example and model working hard, taking care of one another and finding time to recharge. Ambassador Rice has worked many years in public service, dealing with innumerable crises. To see her come in to work every day and put the American people first, and then be the last one to turn off the lights at night, that's a good role model.

■ LESLIE GIBSON MCCARTHY

WHO

Justin Vail

DEGREES

JD '12, WashU Law; BA '05, Truman State University

ON HIS FIRST DAY AT WASHU

He met his future wife, **Roshni Shikari, JD '12**. She's a civil rights trial attorney with the Department of Justice, and the couple has two daughters. "It's important to find moments to ground yourself, and for me, that's spending time with my family," he says.

WHAT IT'S LIKE TO WORK IN THE EISENHOWER EXECUTIVE OFFICE BUILDING

"After a long day, I'll walk out of the office and see the view of the White House, the Ellipse and the Washington Monument in the moonlight, and it's still breathtaking," Vail says.

Photo: Andres Alonso

Read more from Justin Vail in our online edition, including who his most memorable law professors were, how he remains optimistic and where he sees himself in five years.

Photo: Michael Thomas

Investing in a competitive advantage

Eric Upin advocates for the power of the endowment to draw talent, expand opportunity and grow the university's impact.

Eric Upin, AB '83, is an endowment guy. "I'm a strong believer in endowments, which are a critical and strategic component of any major research university," Upin says of the pooled investment funds that generate ongoing income for academic institutions like WashU. "Endowments create financial stability and are a powerful tool for recruiting high-caliber faculty and students."

Upin, who earned a bachelor's degree in economics from Washington University and an MBA from Harvard Business School, began his career on Wall Street in investment banking. After 15 years, he shifted to endowment management, first overseeing Stanford University's endowment. In 2017, he returned to WashU to fill the role of interim chief investment officer for the university's endowment. Today, he is co-founder and managing partner of Point Olema Capital Partners, a San Francisco–based multifamily investment office.

As board chairman of the Washington University Investment Management Company, Upin continues to advise WashU's investment portfolio strategy. He also has served on the Board of Trustees and the San Francisco Regional Cabinet, strengthening connections to WashU among alumni, parents and friends in the Bay Area, where he lives. His son, Thomas, is a sophomore in the McKelvey School of Engineering, and Upin and his wife, Natalie Stern, joined the Parents Council in 2021. They are longstanding supporters of the university and endowed an undergraduate scholarship in honor of Upin's parents.

Most recently, Upin accepted a role as co-chair of Make Way: Our Student Initiative. This fundraising effort aims to increase financial resources for undergraduate scholarships, graduate scholarships and fellowships, and a best-in-class student experience.

HOW DID YOU BECOME AN ENDOWMENT GUY?

I've always been fascinated by the interaction between market history and behavioral economics. I had the privilege to take a class at WashU with Hyman Minsky, who was one of the fathers of behavioral economics and a giant in the field. He presented the controversial idea that market stability can potentially create instability. When the market is steady, investors perceive less danger and take more risks; the resulting collapse is known as a "Minsky moment."

I also am interested in managing global, multiasset class portfolios that are built to last. So much of the market is very short term, but endowments have a multigenerational horizon, which gives them quite a bit of reliability and a real competitive advantage. You can invest in exciting areas and big ideas that will play out over an extended period.

Finally, endowments are vitally important to universities. They support scholarships and fellowships for students, professorships for faculty, research, and facilities and operations. It's so gratifying to advance a mission like WashU's.

WHY DO YOU HELP LEAD MAKE WAY?

More than half of today's jobs won't exist in 20 years. At the core of Make Way is our solemn societal responsibility to educate young people and prepare them for the immense amount of change ahead. We need to cultivate the best and brightest minds to take on the challenges we face today and will tomorrow. Also, I personally am concerned about the wealth gap in our country. Education is one of the most reliable ways of helping people reach self-sufficiency and financial security.

Make Way is about more than access to a WashU education. We have a bold vision to ensure all our amazing students live up to their potential. By investing in the student experience, we will provide all students with what they need to succeed, whether that's mental health support, career counseling, internships, financial literacy or leadership development.

WHY IS EXPANDING STUDENT ACCESS AND OPPORTUNITY CRITICAL NOW?

The financial demands on families are greater than ever. The cost of tuition has gone up much faster than inflation, making it difficult for many to afford a college education — even with financial aid and scholarship assistance. The burden of educational debt is forcing many graduates to choose career paths based on income potential, which is detrimental to them and often to society.

WashU took a big step in fall 2021 by leveraging the abundance of the 65% return on our endowment to adopt need-blind admissions. For the first time, we do not consider an applicant's financial need in our admissions decisions. While we have reached this very important milestone, we need additional resources to ensure we can enroll the students we admit regardless of their ability to pay. Philanthropic support for scholarships and fellowships is key to achieving our goals for student access and affordability.

WHY DO YOU GIVE BACK TO WASHU?

My undergraduate alma mater will always hold a special place in my heart. I'm very grateful for what I learned and how I grew during my time on campus.

I'm also so proud of what this institution has accomplished. When I graduated in the early 1980s, WashU was a strong Midwestern school. Now, thanks to the vision and leadership of the past three generations of chancellors, trustees and faculty, it's a university of national prominence. This is a stunning achievement.

■ TRICIA HENDRICKS

Writing the next chapter

Young alumni take a page from their student days to stay engaged with WashU.

To earn a bachelor's degree from Washington University, students must complete at least 120 units of coursework. That number, however, does not capture the full measure of a WashU education. Many students devote just as much time and energy to clubs, sports and volunteering as they do to their academic pursuits.

Through co-curricular activities, students build friendships and community. They also develop critical soft skills like communication, leadership, problem-solving and time management that complement their classroom studies and prime them for postgraduate success. Today, some of the university's most recent graduates are finding opportunities through the Alumni Association to maintain the passions, purpose and WashU spirit they developed as students.

Jocelyn Meraz, AB '18, immersed herself in campus activities like Relay for Life and the Association of Latin American Students when she came to WashU from her hometown of Chicago. She was just as eager to explore greater St. Louis and began by tutoring local Latino youth in math, reading and science via the Niños Cambios Puertas program. But Meraz became truly invested in St. Louis and its diverse populations through the Gephardt Institute for Civic and Community Engagement, where she held various work-study and internship positions from her sophomore to senior years.

Through her work at the Gephardt Institute, Meraz came to value listening as the most effective tool for partnership and problem-solving. She held onto this wisdom after earning a bachelor's degree in anthropology, with a concentration in global health and environment, and returning to Chicago for a job in community health care.

Despite a 40-hour work week, Meraz suddenly had more free time than ever before. "Now, what?" she wondered. The answer emerged during a conversation with mentor Stephanie Kurtzman, the Peter G. Sortino Executive Director of the Gephardt Institute. Kurtzman introduced Meraz to the WashU Engage network, which teams with the institute to promote service and community engagement among alumni.

Nearly five years later, Meraz now sits on the planning committee for the Chicago chapter of the network, which also has a dedicated presence in Washington, D.C. Throughout the year, she meets with committee members to organize events and projects for Chicagoland alumni that tackle disaster relief, education, food insecurity, transformative justice and other social issues. "Once I left WashU, I didn't think I would be able to continue the volunteer work that became so important to me as a student," Meraz says. "But WashU Engage provides an opportunity for me to stay engaged beyond the walls of campus."

Gabrielle Kaplan, AB '22, likewise hopes to bridge the best of her student days with her postgraduate life in Philadelphia, where she is an analyst at JPMorgan Chase. As a student, Kaplan's calendar was routinely packed with commitments to her sorority, Girls on the Run St. Louis, Challah for Hunger and Hillel. More

Photo: © Claudia Salvato Photography

Far left: Last fall, Gabrielle Kaplan, AB '22, met other alumni in the Philadelphia area while participating in a Cradles to Crayons volunteer event organized by WashU Engage.

Top: Jocelyn Meraz, AB '18

Bottom: Mia Lai, BS '17, MS '18

often than not, however, she could be found leading campus tours for the Office of Undergraduate Admissions. Kaplan became a Student Tour Leader, now known as Bear Ambassadors, in the spring of her first year and continued with the program through graduation. She assumed more responsibilities, including onboarding new guides, during an internship her junior and senior years. Even the pandemic could not derail her dedication — she simply shifted gears and began conducting tours and training sessions virtually.

"Being a tour leader made me appreciate my WashU education even more," says Kaplan, who graduated with a bachelor's degree in history. "It prompted me to think about everything I love most about WashU, and I also learned a lot from listening to the other guides' personal anecdotes while training."

A natural storyteller, Kaplan delighted in sharing her own favorite classes, study spots and university traditions with visiting students and their families. Now, she is eager to do the same as part of the Alumni and Parents Admission Program (APAP), a group of volunteer alumni and current parents who support WashU's undergraduate admissions efforts.

For Kaplan, APAP is both a natural extension of her relationship with the admissions office and a family tradition. Her mother, **Hilary Block Kaplan, AB '92,** is a longtime volunteer and a committee chair for the central New Jersey region. Through APAP, Kaplan especially looks forward to chatting with admitted students about all that WashU has to offer. And because her undergraduate memories are so fresh, she is uniquely poised to give advice and answer questions about the current WashU experience.

Kaplan hopes to help the next generation of WashU students find their place. And as a working professional in a new city, she is doing the same for herself.

Mia Lai, BS '17, MS '18, can relate. Raised in the United States, Lai attended high school in China before coming to WashU and studying systems engineering and supply chain management. Through the years, she bonded with other Asian students on campus over a shared love of music and dance. She developed close friendships while taking part in groups and performances like the Asian Music Association, Carnaval belly dance team, K-pop dance collective PL4Y and Spirit of Korea.

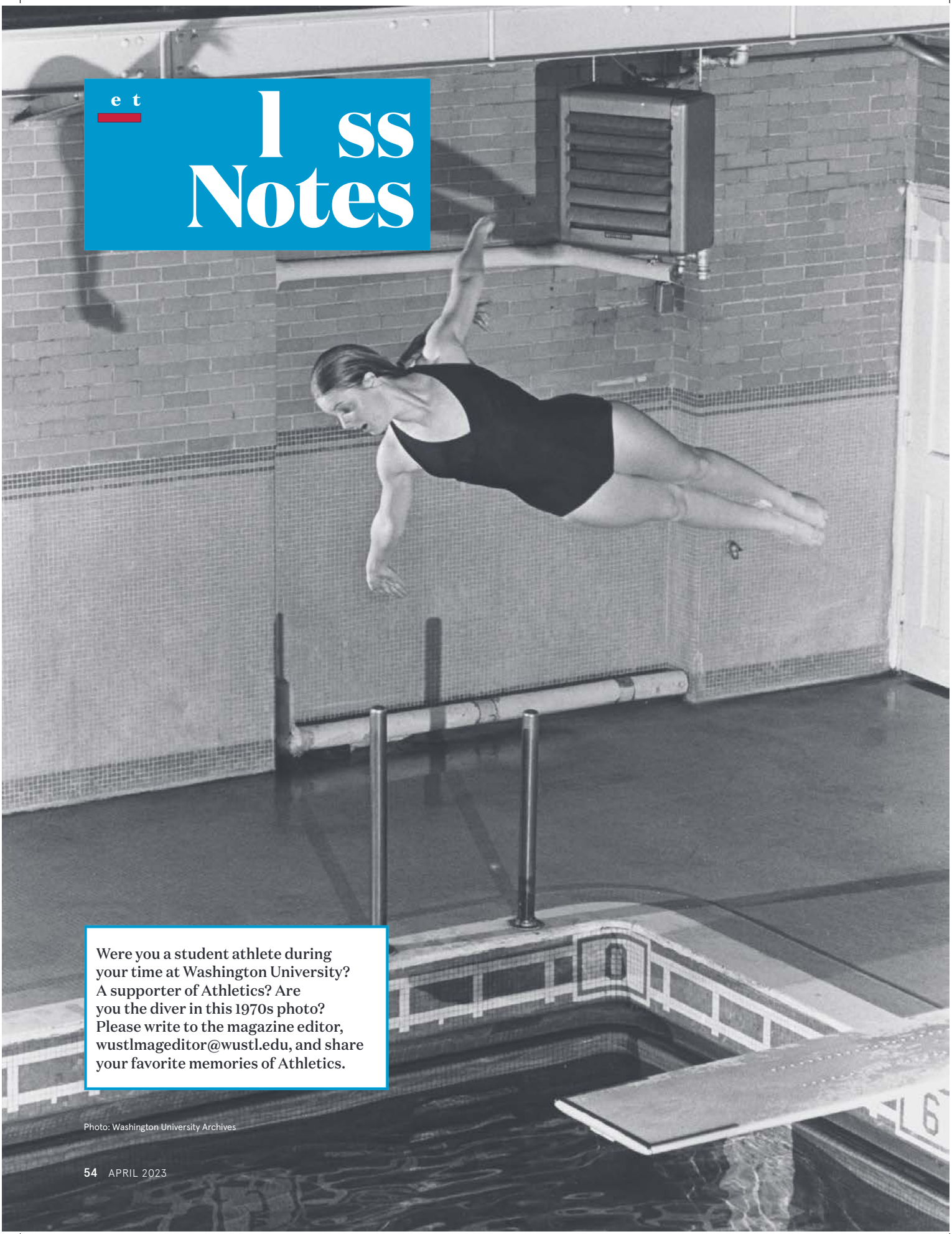
Lai moved to San Francisco after graduation. But with few contacts in the area, she craved a sense of community outside of work. A little over a year ago, she learned about plans to launch a Bay Area outpost of the Washington University Asian Alumni Network, then based in New York, and immediately jumped on board. Since then, she and two others have been instrumental in kicking off the new chapter.

"Everyone needs social connection," says Lai, who would like to see the group become a social and professional support system for Asian, Asian American, Pacific Islander and Desi American alumni in and around San Francisco.

For Lai and other young grads, staying engaged with the WashU community has helped ease the transition from college to the real world. "WashU always puts students first," Lai says. "It's nice to know the university is there for its alumni, too."

■ EMMA DENT, AB '09

Class Notes



Were you a student athlete during your time at Washington University? A supporter of Athletics? Are you the diver in this 1970s photo? Please write to the magazine editor, wustlmageditor@wustl.edu, and share your favorite memories of Athletics.

Photo: Washington University Archives

What's *New*?

Let us know about recent honors, promotions, appointments, travels, marriages and births, so we can keep your classmates informed of important changes in your lives.

SEND NEWS:
Class Notes, *Washington Magazine*
Washington University in St. Louis
Campus Box 1070
1 Brookings Dr.
St. Louis, MO 63130-4899

EMAIL:
wustlmagclassnotes@wustl.edu

Entries may take up to three issues after submission to appear in the magazine; they are published in the order in which they are received.

ALUMNI CODES

AR	Architecture
BU	Business
DE	Dentistry
EMBA	Executive MBA
EN	Engineering
FA	Art
GA	Graduate Architecture
GB	Graduate Business
GD	Graduate Dentistry
GF	Graduate Art
GL	Graduate Law
GM	Graduate Medicine
GN	Graduate Nursing
GR	Graduate Arts & Sciences
HA	Health Care Administration
HS	House Staff (Residency)
LA	Arts & Sciences
LW	Law
MD	Medicine
MT	Manual Training
NU	Nursing
OT	Occupational Therapy
PMBA	Professional MBA
PT	Physical Therapy
SI	Sever Institute
SU	Sever Institute Undergraduate
SW	Social Work
TI	Technology & Information Management
UC	University College

1949

(John) Roger Nelson, LA49, MD53, penned *A Harrowing Journey* (Fox Ridge Publishing, July 2022), offering readers a new perspective on the first five books of the Bible. First an interest, then a habit and finally a compulsion for Nelson, the book examines the lives, actions and beliefs of the challenged Israelites and their relationship with God. Nelson practiced internal medicine in Kirkwood, Mo., and taught at WashU's School of Medicine, walking medical rounds with residents and students for 20 years.

1956

Ray Killebrew, LA56, and his wife, Helen, celebrated their 65th wedding anniversary last August. Killebrew retired in 2018 as an assistant professor of communications after teaching at Missouri Baptist University for two decades. Earlier, he spent over two decades with Maritz and almost three decades in entrepreneurial marketing communication ventures. The Killebrews reside in Kirkwood, Mo., and enjoy community activities; long walks; family time with their two children, three grandchildren and four great-grandchildren; and staying healthy.

1962

Marilyn Levin Brown, LA62, is an artist and author whose 18th book was published in 2022. A couple of others, Brown writes, "went to a landfill." *Digital Clay* and *Digital Clay 2* are among her books that survived.

1965

Charlotte McDaniel, LA65, received the coveted Fulbright Association Award for Outstanding Chapter Leader at the organization's 2022 annual conference in Bethesda, Md., in early October 2022. She was recognized for her earlier presidency of Georgia's Fulbright chapter.

1967

John S. Douglas Jr., MD67, professor of medicine at Emory University School of Medicine, was recognized with three awards prior to his retirement Dec. 1, 2022: the Lifetime Achievement Award from the American College of Cardiology, the Distinguished Alumnus Award from the University of the South, and the Mason F. Sones Jr. MD Distinguished Service Award from the Society for Cardiovascular Angiography and Interventions.

1968

Harriet Entin, LA68, who specializes in helping clients understand and heal through complex trauma, continues to enjoy her private practice in St. Louis. A longtime teacher of tai chi and meditation, Entin integrates these healing arts with modern psychotherapy. In her free time, she is a devoted gardener and equestrian, and was awarded the Dressage Foundation's Century Club Award following her dressage ride with her equine partner, Tre Awain Medelago ("Mellie").

1969

J. Clay Singleton, LA69, was honored by Rollins College in Winter Park, Fla., with the endowment of the Singleton and Orchid Chair in Finance. Now retired, Singleton taught at the college's Crummer Graduate School of Business, where he was the George D. and Harriet W. Cornell Professor of Finance from 2002 to 2020. Singleton and his wife, Kathy, live in Ocoee, Fla.

Michael Weiner, LA69, LW73, authored *In My Expert Opinion: Becoming an Effective Expert in the Financial Services Industry* (Luminare Press, 2018). The book, his first, followed his long career in securities, futures and derivative law that began in 1973 at the now-defunct Commodity Exchange Authority. Prior to his retirement from Bates Group, LLC, Weiner served as an expert witness in state and federal courts. A frequent traveler in search of scuba opportunities, he lives in Portland, Ore., with his wife, Kathy.

1971

Joseph Heyman, GR71, GR75, in 2022 was inducted into NASA's Langley Research Center Hall of Honor, a prestigious accomplishment. The 105-year-old center has had more than 10,000 employees, only 60 of whom have been tapped for this recognition. Heyman's visionary work as an inventor and leader in nondestructive evaluation to test aircraft and spacecraft materials and structures made an impact on NASA Langley and helped the space shuttle fleet safely return to flight after accidents. He retired in 2002 as Langley's senior technologist.

Bruce Levenson, LA71, was named chairperson of the U.S. Holocaust Memorial Museum's 30th anniversary commemoration, to be held April 20 in Washington, D.C.

1973

Lawrence Altman, EN73, was part of a successful grant application to the United States Department of Education to prepare and increase the number of mental health professionals in Oklahoma's rural schools. Altman was also appointed a legal consultant to the board overseeing the grant.

Albert Ip, EN73, was appointed to the court of City University in Hong Kong in January 2022 and the court of Hong Kong University of Science and Technology in September. His three other 2022 appointments were as senior adviser to the dean of the School of Business and Management, chairman of the business school's Career Development Advisory Council, and adviser to the Finance and Strategic Planning Committee of Eagle Asset Management.

Richard Smith, GB73, wrote and self-published *Within the Ivory Tower* (September 2022), a satirical look inside institutions of higher education.

1975

Rick Welker, EN75, is leading an active retired life of traveling, dining, cycling, hiking and caring for and enjoying his pets.

1976

Ellen Barker, LA76, published her first novel, *East of Troost* (She Writes Press, September 2022). The book tells the story of a fictional narrator who after personal tragedy moves back to her childhood home in the Kansas City, Mo., East of Troost neighborhood. The 50ish woman finds her old neighborhood, which she left to attend WashU in 1972, radically changed, and she must deal with crime, home repair, self-doubt and the skepticism of her neighbors and relatives. Barker writes that, unlike the protagonist, she and her husband, **Tom Shoup,** GR77, GR81, are "sort of retired and living in Northern California."

Elma Kanefield, SW76, wrote and self-published *Hamlet's Mirror: Reaching Your Performance Potential Onstage and Off* (September 2022), designed to help empower performers and restore their mental health. In the book, Kanefield recounts fictionalized anecdotes of real performers and experiences of hundreds of performing artists to explain why some fail to reach their performance potential and others succeed.

1977

Ted Rich, LA77, happily retired, writes that his WashU experience changed his life, including by teaching him how to learn and how to be a critical thinker. With clear personal pride, he shares that he is the father of two children and the grandfather of four, has been married almost 40 years, enjoyed a good career and has been a loyal friend to many. He hopes his classmates' lives have been successful as well, however they define success.

1978

Jay Heller, LA78, an attorney for more than 40 years, published a second novel, *The Man Who Could Fly* (Xlibris US, February 2022), almost 11 years after he wrote *The Last Man*. Heller and his wife of almost 40 years enjoy their three married kids and five grandchildren in Chicagoland.

1982

James Whittaker, EN82, retired in September 2022 after 40 years as an electronics and software engineer at the Naval Undersea Warfare Center and its predecessor organization, the Naval Underwater Systems Center, in Newport, R.I. He is enjoying more time with family, traveling with his wife and pursuing hobbies including gardening, woodworking, photography and reading.

1983

William "Bill" Hunt, EN83, was named global president of VVF Ltd. (formerly Vitamins, Vegetables & Food Ltd.), with operations in Indonesia, Singapore, India, the Middle East, Europe, Africa and the U.S. A contract manufacturer for respected personal care brands, VVF is the world's largest contract manufacturer of bar soaps, deodorant sticks and other products. Hunt is headquartered in Dubai, United Arab Emirates.

Paul Obrock, DE83, was recently elected by the Pierre Fauchard Academy as trustee representing the southeastern U.S., Jamaica and Puerto Rico. An international honor society for dentists, the PFA promotes continuing education and leadership development. In addition to his duties with the board, Obrock will support the leaders of the 11 sections within the region.

1984

Pete Woods, LW84, a managing partner at St. Louis law firm Haar & Woods, LLP, was recognized in the 2023 edition of *The Best Lawyers in America* in the practice areas of commercial litigation and family law. He was also inducted into the University of Missouri Intercollegiate Athletics Hall of Fame in November 2022.

1985

Nancy K. Peterson, LA85, was honored with the 2022 Don Fiedler Excellence in Criminal Defense Award, bestowed annually to a member of the Nebraska Criminal Defense Bar by the Nebraska Criminal Defense Attorneys Association. Peterson was recognized for "her tireless dedication, boundless compassion and battle-honed wisdom."

1986

Jim Avery, LA86, HS93, after 28 years as a general internal medicine physician at WashU, left in spring 2022 to devote more time to bone and mineralization disorders. Avery has been interested in this subject since 1983, when Louis Avioli, MD (1931–1999) and his research team at WashU hired him as an undergraduate biology student. A flight surgeon for the United States Air Force, Avery maintains and directs a wellness clinic at Nestlé Purina PetCare in downtown St. Louis.

Michael B. Cosmopoulos, GR86, GR91, the Hellenic Government-Karakas Foundation Professor of Greek Studies at the University of Missouri–St. Louis, was elected to the American Academy of Arts and Sciences in May 2022. Cosmopoulos has spent more than 30 years in research and scholarship on ancient Greece and is known for his work with the Iklaina Archaeological Project, which he directs.

Creig Houghtaling, EN86, SI91, and **Kay Berra Houghtaling,** EN86, proudly announce the birth of their first grandchild, Audrey June Devine, born in February 2022 to daughter **Jessica Houghtaling,** GM21, UC23, and her husband, Stephen Devine. Creig and Kay are enjoying retirement from Boeing and having time to be with their granddaughter. They write that "maybe someday, she will be the third-generation family member to attend WashU."

1990

Brian Gilbert, LA90, was hired by Village Roadshow Entertainment Group (VREG) to oversee newly launched Village Roadshow Sports. Gilbert, who is responsible for the development of VREG's original slate of sports content, is working closely with VREG's film and television divisions to amplify relevant sports themes in their respective slates.

Rob Goldsteen, LA90, an internal medicine physician, transitioned from military medicine and as a flight surgeon at Walter Reed Army Medical Center to a 12-year stint as a professor at University of Texas Southwestern. He then became a residency director for the Accreditation Council for Graduate Medical Education in South Carolina. For the past four years, Goldsteen has been the chairman of the Division of Clinical Medicine at Burrell College of Osteopathic Medicine, New Mexico State University. He resides with his wife, Anne Weinberg, and their two daughters in Las Cruces, N.M.

Sandra Lin, LA90, in August 2022 began a new position as professor and chair of the Division of Otolaryngology and Head & Neck Surgery at the University of Wisconsin School of Medicine and Public Health. Earlier, she worked 20 years in the Johns Hopkins Department of Otolaryngology, holding multiple leadership roles. She writes that she is excited to be living in Madison and back in the Midwest.

Catherine Rankovic, GR90, published an essay, "Medusa's Metadata: Aurelia Plath's Gregg Shorthand Annotations," in *The Bloomsbury Handbook to Sylvia Plath*. The essay is based on a paper Rankovic presented at the 2017 International Sylvia Plath conference held in Belfast, Ireland. For the paper, Rankovic cataloged and transcribed more than 200 Gregg shorthand annotations in books and letters held in Sylvia Plath archives at Indiana University and Smith College, which yielded new information about poet Plath and her mother, Aurelia.

1992

Craig L. Finger, LA92, a partner at Fox Rothschild LLP, was selected to the *Philadelphia Business Journal*'s Best of the Bar list featuring top lawyers in the Greater Philadelphia area. He was named to the pro bono category for leading a team that represented Philadelphia Youth Basketball, Inc., in the real estate acquisition, financing and corporate structuring of a $30 million

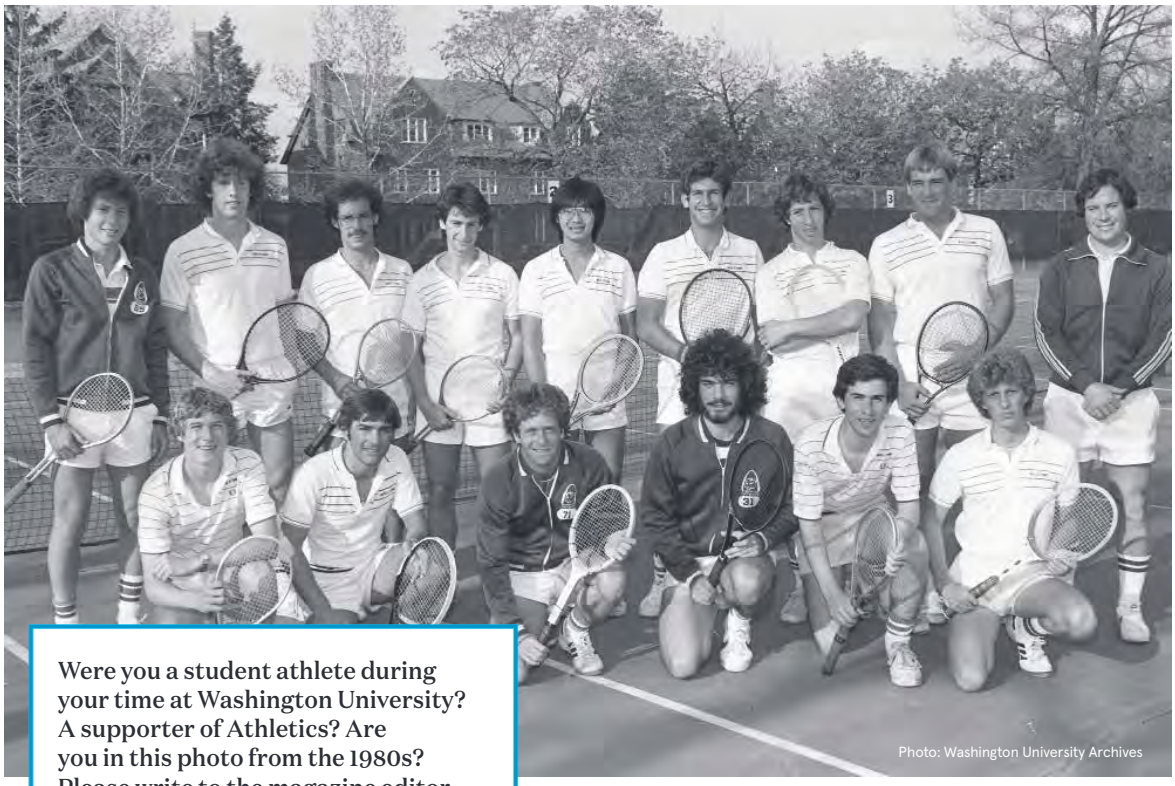


Photo: Washington University Archives

Were you a student athlete during your time at Washington University? A supporter of Athletics? Are you in this photo from the 1980s? Please write to the magazine editor, wustlmageditor@wustl.edu, and share your favorite memories of Athletics.

basketball and community empowerment center in North Philadelphia.

Beth Hendler-Grunt, BU92, the founder and president of Next Great Step, penned *The Next Great Step: The Parents' Guide to Launching Your New Grad Into a Career* (Merack Publishing, September 2022). As the mom of a recent college graduate and a college sophomore, she has firsthand experience. She has been featured in *The Wall Street Journal* and *The New York Times*.

Birgit Lennertz Sarrimanolis, GR92, authored a memoir, *Transplanted* (Cirque Press, 2022), which chronicles the trials of battling cancer against the backdrop of Alaska's northern landscape. Her work has also appeared in *Cirque Journal, Five on the Fifth, 49 Writers, Shark Reef* and *Medicine and Meaning*. She lives in Alaska where she writes overlooking the Tanana Valley.

Qiu Xiaolong, GR92, GR94, received the 2022 Tradition of Literary Excellence Award, funded by the Municipal Commission on Arts & Letters of University City, Mo. A mystery writer, poet, translator and critic, Xiaolong has written 14 novels in his award-winning Inspector Chen series, which has been praised for its accurate portrayal of contemporary life in China.

1996

D. Mara Lowenstein, LW96, was named the head of legal affairs for Beacon Platform Inc., a Wall Street firm that helps companies unlock the potential of modern technology. Lowenstein and her husband, Martin Schmaltz, a professor, live with their two dogs in Boston.

Daniel Messeloff, LA96, a partner at Tucker Ellis LLP, was selected for inclusion in the 2023 edition of *The Best Lawyers in America* in the areas of employment law, management and litigation, and labor and employment.

1997

James Gilchrist, EN97, the Ruth H. and Sam Madrid Professor of Chemical and Biomolecular Engineering at Lehigh University, was named a fellow of the American Institute of Chemical Engineering.

Sara (Beatty) Ratner, LA97, president of Nomi Health's government program business across the country, oversees efforts to take action on health-care spending data, run payments more directly and expand access to care to communities most in need.

1998

Jim Watson, LW98, retired in early 2022 after 21 years with the Federal Bureau of Investigation. During his last seven years with the FBI, Watson served as general counsel in Indiana. In May 2022, he joined Ice Miller, LLC as a partner, concentrating his practice on cybersecurity, data privacy and investigations.

2003

Pamela Hongisto, LA03, retired in May 2021.

2004

Lori Apfel Cardeli, AR04, launched LACArch in June 2021. LACArch is a full-service architectural design firm with a focus on the design, project management and construction of single-family custom homes, renovations and additions. Her website is LACArch.com. She and her husband, **Seth Cardeli**, LA04, and their two children live in Rockville, Md.

Crystal M. Moten, LA04, joined the Obama Presidential Center Museum as its inaugural curator of collections and exhibitions in

October 2022. Her book titled *Continually Working: Black Women, Community Intellectualism and Economic Justice in Postwar Milwaukee* (Vanderbilt University Press) was released in March.

2006

Catherine Kelly, LA06, was appointed associate dean of academic affairs and professor of justice and rule of law at the Africa Center for Strategic Studies, an academic institution within the U.S. Department of Defense. She frequently travels to Africa for executive-level programming with senior African military and civilian officials.

2007

Orly Henry, LA07, an attorney, was named a shareholder at Littler's Chicago office. Henry is a litigator who defends the interests of employers in a wide variety of employment matters, with a particular focus on biometric data privacy issues, restrictive covenants and trade secrets.

Joseph D. Shumow, LW07, a shareholder and chair of the Reinhart Boerner Van Deuren real estate practice, was included on the 2023 *The Best Lawyers in America* list.

2008

Jeffrey Binder, LA08, wrote *Language and the Rise of the Algorithm* (University of Chicago Press, November 2022), a history of the idea of algorithm from the 16th century to the rise of machine learning. The book reveals how recent developments in artificial intelligence are reopening an issue that troubled mathematicians well before the computer age: How do you draw the line between computational rules and the complexities of making systems comprehensible to people?

Elisabeth Rennell Hosmer, EN08, was selected as a 2022 Society of Women Engineers Emerging Leader in recognition of her outstanding leadership skills and significant accomplishments in the field of engineering. One of only 10 recipients to be so honored, she was recognized at the organization's October 2022 national conference.

Ian Weaver, GF08, had a solo exhibition, "WAKE: Ian Weaver," at Fort Worth (Texas) Contemporary Arts, August-September 2022. His work explores memory, considering how individuals and communities, specifically the Black Bottom area of Chicago's West Side, construct their own identities. When large parts of this multiethnic community were destroyed in the 1950s to construct an expressway, residents lost much of their material history.

2009

Patrick Burden, LA09, spoke at the 12th International Conference on Health, Wellness & Society at the University of the Witwatersrand in Johannesburg, South Africa. His topic, prioritizing wholeness, addressed strategies for wellness practice in medical schools.

Kate (Lincoff) Lewis, LW09, who practices family law in Denver, recently completed the Leadville 100 Mile endurance race and the Crested Butte 55. She is married to **Adam Lewis,** LW09, who also practices in Denver. Both were named to the 2023 Best Colorado Lawyers list in their chosen fields, and Kate was also recognized as a Super Lawyer 2022. They have two children.

2010

Laura Mart, FA10, was promoted to associate curator at Skirball Cultural Center in Los Angeles. She co-curated the original exhibition "'I'll Have What She's Having': The Jewish Deli," which had national tour stops in New York City (New York Historical Society); Houston (Holocaust Museum Houston); and Skokie, Ill. (Illinois Holocaust Museum and Education Center).

2011

Andy DeSoto, GR11, GR15, the newly appointed senior adviser for the social, behavioral and economic sciences directorate of the National Science Foundation, is working to establish partnerships within and outside of NSF to grow these sciences opportunities to advance the NSF's mission.

2012

Catherine (Rafferty-Millett) Quatrano, LA12, and **Alexander Quatrano,** LA12, welcomed a second child, David Ralph Quatrano, in October 2022. David shares his middle name with his great-grandfather Ralph Quatrano, emeritus dean and the Spencer T. Olin Professor Emeritus of Biology.

2015

Zack Kessinger, BU15, LW18, an All-American college baseball player at WashU, was selected to be the next associate counsel for the Texas Rangers baseball team at their stadium in Arlington, Texas.

Emma Tyler, LA15, was promoted to associate director for governmental affairs in the Office of Secretary of Transportation. As a presidential appointee, Tyler supports Secretary Pete Buttigieg's engagements with members of Congress and the implementation of the Bipartisan Infrastructure Law.

2018

Maya Sorini, LA18, won the 2023 Press 53 Poetry Award for *Boneheap in the Lion's Den*, which beat out almost 400 other manuscripts. Press 53 is publishing her book this month, and Sorini will receive a $1,000 advance and 53 copies.

2019

Bambi Hall, GL19, was named public affairs director for the State Bar of Texas. She's finally able to marry her legal education with her work, having more than 25 years' experience as a marketing and communications professional. A certified master public information officer, Hall has held positions with the city of New Orleans; the state of Louisiana; Gulf Engineers and Consultants, Inc.; and Texas Southern, Dillard and Xavier universities.

Meenakshi Jha, GF19, won the Mother Art Prize 2022's International Artist Award. The award comes with a group show at Zabludowicz Collection, London; an International Residency Award consisting of a one-month residency at the Mother House Studios in London; and mentoring sessions with Sylvie Gormezano, director at Picture This Productions and chair of the Association of Women Art Dealers.

Aliza Shatzman, LW19, president and co-founder of The Legal Accountability Project, visited more than 20 law schools in fall 2022 to share her nonprofit's resources, designed to transform the clerkship application process — and the legal profession — for the next generation of attorneys. She will visit more law schools, including WashU Law, this spring. At these events, Shatzman shares her negative clerkship experience to foster honest dialogue about the clerkship experiences on law school campuses.

2020

Sarika Talve-Goodman, SW20, edited *Your Hearts, Your Scars* (Bellevue Literary Press, January 2023), a book of essays by her late sister, **Adina Talve-Goodman,** LA09, that was published posthumously. Adina, who was born with a congenital heart condition and had survived multiple operations including a heart transplant at the age of 19, died in January 2018. The book's seven essays are filled with curiosity, humor and compassion, and they tell the story of her chronic illness and her search for meaning and love, never forgetting that her adult life was tied to the loss of another person, her donor.

2022

Charis Railey, GR22, runs a small dance company in St. Louis centered around the arts of the African diaspora, specializing in dances of Brazil, the U.S. and the Caribbean. She makes the company's dancers available for Carnival/Mardi Gras, school shows, bachelorette parties, dance history lectures and other Black dance-focused events.

Jake Steinberg, LA22, is in the graduate acting program at Columbia University in New York City, pursuing a master's degree in fine arts.

Were you a student athlete during your time at Washington University? A supporter of Athletics? Are you in this photo from the early 1990s? Please write to the magazine editor, wustlmageditor@wustl.edu, and share your favorite memories of Athletics.

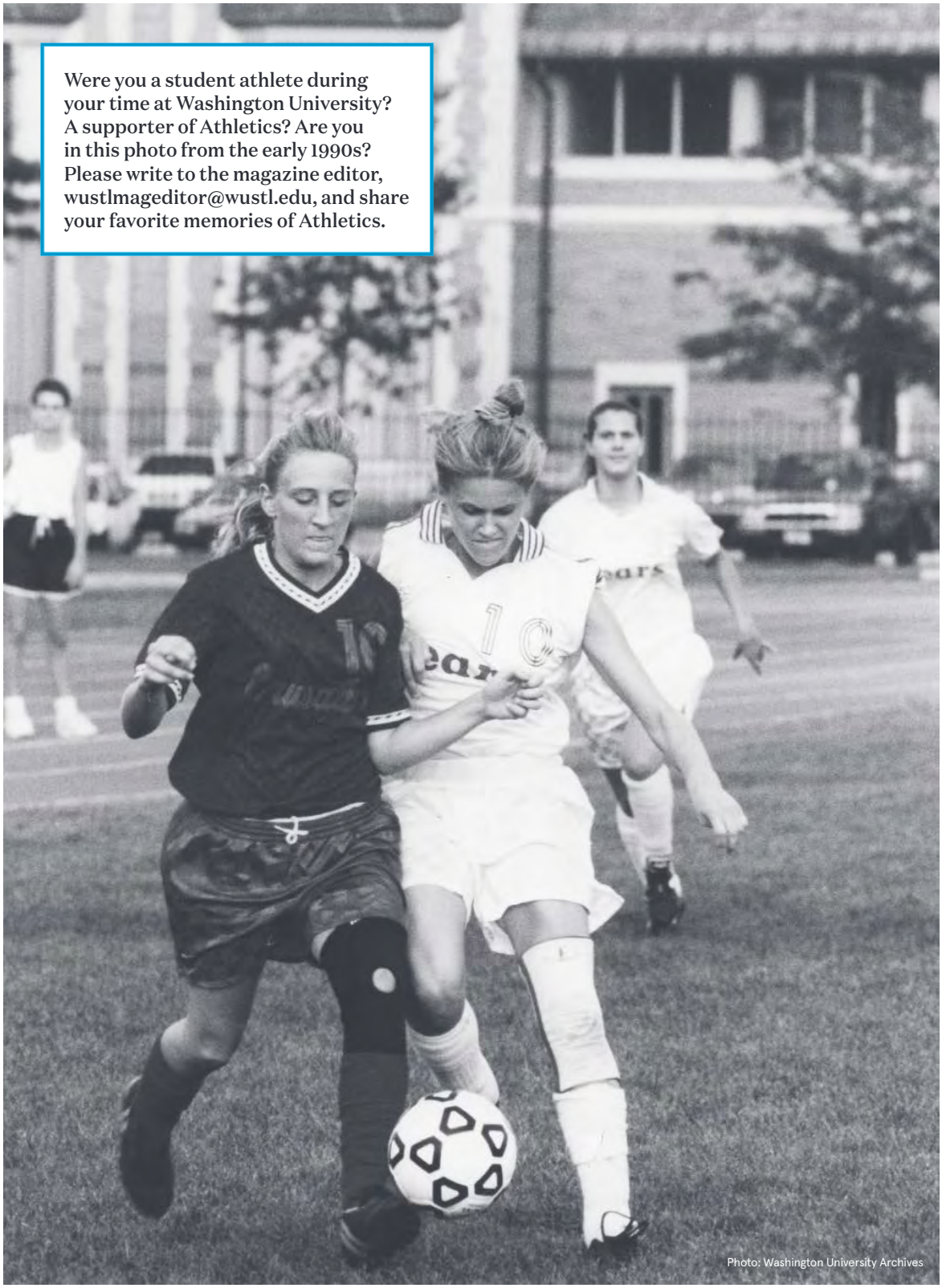


Photo: Washington University Archives

Photo: Washington University Archives

Jerome R. Cox Jr., senior professor emeritus in computer science & engineering, was a prolific inventor, and his work pioneered personal computing in biomedical research.

Jerome R. Cox Jr., senior professor emeritus in computer science & engineering at the McKelvey School of Engineering, died Jan. 17, 2023, in St. Louis. He was 97.

Cox joined Washington University's faculty in 1955 and contributed significantly to the areas of biomedical computing, multimedia communications and computer networking. He and a graduate student, A. Maynard Engebretson, MSEE '63, DSc '70, created a computer to measure hearing in infants. Their work paved the way for early detection of deafness and for mandated screening tests for newborns in the United States.

Cox's work made a significant impact on biomedical research both at WashU and worldwide. In 1964, he brought the Laboratory Instrument Computer, which became known as LINC, and its development team to WashU from Massachusetts Institute of Technology (MIT). LINC transformed biomedical research by integrating computer science with medicine, allowing researchers to program data analysis on the fly, and is considered to be one of the first personal computers. That same year, he founded the Biomedical Computing Laboratory, which introduced small computers to biomedical research.

His pioneering work in radiation treatment planning paved the way for systems in worldwide operation. Computer methods his research team developed for reconstructing images from CT and PET scanners aid in the diagnosis of cancers and cardiovascular disease. His innovations were instrumental in developing early monitors for heart rhythm disturbances. He also worked on computer applications in mapping the human genome and in electronic radiology. He held 12 U.S. patents and published more than 150 journal articles.

R. Martin Arthur, the Newton R. & Sarah Louisa Glasgow Wilson Emeritus Professor in the Preston M. Green Department of Electrical & Systems Engineering, worked with Cox in the early 1970s.

"I worked with him only in my early days as a new faculty member, but he changed the course of my career," Arthur says. "He asked me to join him and Floyd Nolle on a paper on digital analysis of the EEG that was published in *Proceedings of the IEEE* and was republished and cited many times. On top of that, I had been doing electromagnetics in my doctoral work, and that paper with Jerry and Floyd channeled my career into image and signal processing."

Cox recently sent Arthur a copy of Cox's memoir, *Work Hard, Be Kind*.

"He was true to that," Arthur says. "His influence was worldwide. He worked with people all over the world and did it in such a kind, gracious way."

Cox, the Harold B. and Adelaide G. Welge Professor of Computer Science at Washington University from 1989–98, was the first chair of the Department of Computer Science & Engineering from 1975–91. He was instrumental in building a department that has an international reputation for biomedical computing applications and computer networking. With then-department colleagues Jonathan Turner and Guru Parulkar, he founded Growth Networks, a company acquired by Cisco Systems in 2000 that produced an advanced networking chip set and became a model for technology transfer initiatives at the university. In 2007, he started Blendics (Blended Integrated Circuit Systems), to provide system-on-chip design tools and services to companies seeking to develop complex, proprietary, low-power integrated circuits.

"While we think of people like Jerry as being exceptional in technology, many people don't understand or appreciate what kind of a human being he was," says Ron Indeck, CEO of Q-Net Security, a cybersecurity firm that Cox founded. "His license plate read, 'Work hard, be kind.' If we all followed what he lived, the world would be a better place."

Indeck, who worked with Cox for 35 years, says cybersecurity is a challenge, but Cox addressed it directly.

"His vision for the company, which we still have today, is to protect critical infrastructure," Indeck says. "That was so important to Jerry, and he saw that as having the biggest impact on society, humans and life."

Cox earned bachelor's, master's and doctoral degrees in electrical engineering from MIT. He was a member of the National Academy of Sciences' Institute of Medicine and a fellow of the Acoustical Society of America and the IEEE. He was awarded an Honorary Doctor of Science from Washington University in 2001. His honors also include the 2011 Chancellor's Award for Innovation and Entrepreneurship, which he received with Jonathan Turner, who was the inaugural Barbara J. and Jerome R. Cox Jr. Professor of Computer Science and is now senior professor in computer science and engineering. That same year, Cox was recognized with the Engineering School's Dean's Award.

Cox is survived by three children: Nancy (Craig) Battersby, Jerry (Margaret) Cox, and Randy (Patty) Cox; a sister, Anita Hunt; eight grandchildren and four great-grandchildren. He was preceded in death by his wife, Barbara (Bobby), in 2006.

Penelope Parkman Biggs, MA '68, PhD '74, a longtime benefactor of the Department of Classics in Arts & Sciences, died Nov. 3, 2022, after a long illness. She was 85.

Born in 1937, Biggs was raised in Boston and majored in classics at Radcliffe College (which shared classes and later merged with Harvard University) and nurtured a particular fondness for Cicero.

"I loved unraveling those long, winding sentences," she told *Washington* in 2018, "and then pulling them back together again."

Penelope met John Biggs, PhD '83, Hon DSc '11, her husband of 63 years, thanks to a Latin class. As a Harvard junior, John was standing in a department hallway, debating his roommate about which of two courses on Roman poet Catullus to take: one taught by famed scholar Cedric Whitman or one taught by famed scholar Philip Levine.

"But then Penelope walked in to speak with Whitman," John remembers. "And I thought, 'OK. That s decisive. "

Penelope Biggs graduated from Harvard summa cum laude in 1959. In a later course with Whitman, she wrote a paper on the disease theme in Sophocles. That paper was published in the journal *Classical Philology* and has been widely cited since.

She and John married soon after and moved to St. Louis, where John had been raised and where Penelope would earn her WashU degrees.

As a faculty member at Lindenwood College, Penelope earned tenure and published several articles on 18th-century British literature. She later taught advanced Latin courses at Mary Institute (now Mary Institute and Saint Louis Country Day School) and helped found the New City School, from which her two children and four grandchildren all would graduate.

In 1990, Penelope and John Biggs established the Biggs Family Residency in Classics. The annual event includes a week of formal lectures and presentations by some of the field s most prominent scholars, as well as informal interactions with students and faculty. In 2009, the couple received the Robert S. Brookings Award at Founders Day, and in 2013, they established the John and Penelope Biggs Distinguished Professorship of Classics, currently held by Timothy Moore. In addition to her husband, Penelope Biggs is survived by her son, Henry, as well as four grandsons: Jack, Alex, Charles and Thomas. A daughter, Andrea, died in 1980.

Radhakrishnan Gopalan, a longtime, beloved professor of finance at Olin Business School, died Dec. 6, 2022, of cancer. He was 50.

Born in 1972 in Chennai, India, Gopalan joined Washington University in 2006 after earning a doctorate in finance from the University of Michigan. Before that, he worked for five years in the project finance department for a leading Indian bank. Most recently, he served as the academic director of Olin s Mumbai-based executive MBA program, in partnership with IIT-Bombay.

"Radha was a dear friend, former student of mine, an esteemed researcher and a respected teacher and mentor to Olin students," says Anjan Thakor, interim dean of Olin Business School and the John E. Simon Professor of Finance. "Our grief over this tragic loss is great, but so is our gratitude for the life of our friend."

In remembering Gopalan, colleagues and friends recall that he was an independent thinker who loved to call himself the "devil s advocate" in any conversation. He was well-loved for his kind heart, warm smile, quick wit and humor.

A prolific researcher, Gopalan authored more than two dozen academic papers on topics including corporate finance, corporate governance, emerging market financial systems, mergers and acquisitions, corporate restructuring, entrepreneurial finance and household finance. He was a go-to finance expert for journalists and researchers alike. His research collected nearly 4,000 citations over the years, according to Google Scholar notes.

Gopalan's accomplishments were many. He was a recipient of Olin's Reid Teaching Award, an annual award presented by Olin graduating students to the professors whose enthusiasm and exceptional teaching most inspire, energize and transform students.

He also was a two-time winner of the Olin Award, which is given in recognition for research most likely to have an immediate impact on business. In 2011, Poets & Quants selected Gopalan as one of the "40 best business school professors under 40."

He leaves behind his wife, Sundari Balan, an adjunct lecturer in business at Olin and at University College, as well as two children — Ananya, a sophomore at WashU, and Shrey, an eighth grader at Mary Institute and Saint Louis Country Day School.

Gopalan was an avid runner and was very active in supporting Asha for Education, a nonprofit dedicated to providing education to underprivileged children in India.

Mary Lee (Kralovic) Holland, MD '71, passed away in San José, Calif., Nov. 17, 2022.

Holland was born Oct. 10, 1943, in Charleston, W.V., and earned a bachelor s degree from West Virginia University in Morgantown, W.V., and a medical degree from Washington University in St. Louis. She returned to Morgantown to complete her internship at the WVU Medical School in pediatrics, where she met her future husband, M.R. Pamidi.

Holland completed a residency in pediatrics at Cook County Hospital in Chicago and Loyola University Hospital Medical Center in Maywood, Ill. After marrying Pamidi, they moved to San José, where she opened her practice in pediatrics, affiliated with O'Connor Hospital. She later closed the practice to raise her two children: son Matthew Arun and daughter Meera Linda.

As a physician, Holland s goal in life was to heal and help people. She loved working with children and often volunteered at her kids' elementary school. In her free time, she enjoyed sewing, knitting and crocheting, painting, photography, reading books, and playing the piano and clarinet.

She leaves behind her husband of 46 years, her children and numerous relatives and friends.

Barbara Liebmann, who served in numerous staff positions during a long career at Washington University, died Nov. 8, 2022, of pancreatic cancer. She was 66.

Born in St. Louis in 1956, Liebmann joined Olin Business School as a staff member in 1998. In 2003, she moved to the University Advancement Office, and in 2006, she was appointed administrative coordinator for the Center for the Humanities in Arts & Sciences. Even after retiring in 2021, Liebmann continued to serve the university, working part time in the College of Arts & Sciences office through spring 2022.

Liebmann is survived by Gerry Liebmann, her husband of 45 years; their three sons, Benjamin, Joseph and Adam; three siblings, Mary Ann Foley, Linda Mataya and Michael Jones; and four grandchildren, Stafford, Jones, Griffin and Evie Liebmann.

Garvin D. Marty, BSBA '57, died Aug. 11, 2021, at age 87. Marty was the retired president of a prominent St. Louis prosthetic and orthotic company, J.E. Hanger. He attended Normandy High School (class of 52). While a student at WashU, he began his own photo delivery business, and he cherished his memories of friends and activities at the university. He served in the United States Air Force for two years.

William "Bill" Mixson, AB '68, MA '74, died Oct. 22, 2022, at the age of 76. Mixson grew up in Kansas City, Mo., and earned both his bachelor s and master s degrees from Washington University. A certified public accountant, Mixson adored his children and grandchildren and always brightened the room with his unique sense of humor. He is survived by his children, Julie Bulger (Jordan), Charles Mixson (Janey), and Nicole John; grandchildren, Sophia Bell, Niya John, Fatima John, Malik John and Haydon Bulger; and brother, James Mixson.

George Paz, a former trustee of Washington University, died, Oct. 23, 2022. He was 67.

Paz was best known as the former chairman and CEO of St. Louis–based pharmacy benefits manager Express Scripts Inc. He joined the university s board in July 2009 and served until June 2019.

Donald Snyder, a senior professor of electrical & systems engineering at the McKelvey School of Engineering, died Nov. 21, 2022, of complications of gastrointestinal cancer. He was 87.

Snyder joined the Washington University faculty in 1969 in the Department of Electrical Engineering and in the Biomedical Computer Laboratory at the School of Medicine, where he participated in research with Jerome R. Cox Jr. (see pg. 60), a leader in applying advanced technology for introducing new treatments in biomedical engineering including CT scanning technology. Snyder also collaborated with Michel Ter-Pogossian, the founder of positron emission tomography (PET), and others to develop PET systems. Snyder was the Samuel C. Sachs Professor of Electrical Engineering and chair of the department from 1976–86, as well as a professor of radiology at the School of Medicine. He became senior professor in 2003.

Snyder was the founding director of the Electronic Systems and Signals Research Laboratory in the Department of Electrical Engineering from 1986–98.

After the initial launch of the Hubble Space Telescope, an aberration in the mirror was identified, resulting in blurring of all images. Snyder proposed a novel image reconstruction approach that removed the blur; a version of this algorithm has been used on all subsequent images.

Snyder earned master s and doctoral degrees from the Massachusetts Institute of Technology in 1963 and 1966, respectively, and a bachelor s degree from the University of Southern California in 1961. He was a U.S. Navy veteran who served during the Korean War.

Snyder is survived by two sons, Richard (Elspeth Keller) and Philip (Carol); and three grandsons, Owen, Alex and Elias. He was preceded in death by his wife, Carole.

Emil Raphael Unanue, MD, an internationally renowned immunologist at Washington University School of Medicine, died Dec. 16, 2022, surrounded by family in St. Louis after a two-year battle with glioblastoma. He was 88.

Unanue was head of the Department of Pathology & Immunology at the School of Medicine from 1985 to 2006, when he built the department into a preeminent research powerhouse in immunology, all while making major discoveries about the immune system that transformed the field.

The Paul and Ellen Lacy Professor of Pathology & Immunology, Unanue was well-known for his work to understand how the immune system identifies foreign protein fragments, or antigens — a first step in mounting an immune response — and how the immune system s T cells respond.

Through his many years of invaluable contributions as a researcher, Unanue spurred critical findings that have moved medicine closer to being able to improve the body s defenses against diseases, while preventing misdirected immune attacks on the body s normal components.

Unanue is survived by his wife of more than 58 years, Marianne; his children, Marie Unanue (Chris Georgen), Rachel Rose (Scott) and David Unanue (Laura); his brother, Alberto Unanue; and six grandchildren.

Malik A. Williams, an undergraduate student in Arts & Sciences at Washington University, died Oct. 7, 2022, of an undiagnosed medical condition. He was 22.

Williams is remembered as a quiet, calming presence who loved good food, World War II and military history, and gardening. He also was very funny, says friend Miriam Silberman, a senior in Arts & Sciences.

Williams also loved to travel and enjoyed exploring the world by foot. He had recently visited Maui with his mother and great-aunt and participated in an archaeological dig in Italy. Originally from Arlington, Va., Williams also liked to explore St. Louis neighborhoods, sometimes with friends, sometimes by himself.

He originally entered WashU as a first-generation mechanical engineering student, but, while fulfilling his humanities requirements, Williams discovered a passion for linguistics. He officially transferred to Arts & Sciences in summer 2022 with the intent of majoring in the discipline.

Williams is survived by his mother, Grace Williams, and younger brother, Hezekiah Williams.

Roger Clark Yaw, BArch '70, MArch '74, died Sept. 9, 2021. He was 73.

Yaw was raised in Potsdam, N.Y., and helped numerous commercial, residential and institutional clients throughout his prolific professional design and construction career across the United States, most prominently including New Mexico and Central New York. An accomplished musician and classic car enthusiast, he also enjoyed great writing and deep exploration of the natural world.

Yaw is survived by his beloved wife of 23 years, Kit Anderson Yaw; Keith and Kevin Moyer; his brothers, Ed and Tom, and their extended families.

The following death notices were submitted from Sept. 1, 2022–Dec. 31, 2022. Please contact Advancement Services at **WUADDataChange@wusm.wustl.edu** to report the death of an alumnus or alumna. Please submit full obituaries for consideration to **wustlmagclassnotes@wustl.edu**.

1940-1949

Shirley (Kipp) Johnson, LA46, GR64; Oct. '22
Lois (Scritchfield) Raab, GR47; Sept. '22
Richard S. Eckaus, GR48; Sept. '22
Harry S. Jonas, LA49, MD52, HS56; Dec. '22
Frieda (Volkmann) Lopinot, FA49; Oct. '22
Richard J. Martin, EN49; Sept. '22
William A. Wetteroth, EN49; Oct. '22

1950-1959

Ruth (Hoessle) Freeman, FA50; Oct. '22
Louis E. Halsey, LA50; Sept. '22
Sally (Pierce) Langan, LA50; Dec. '22
Alice (Meyer) Mariani, SW50; Sept. '22
Georgia (Dunbar) Colwell, LA51; Nov. '22
Chris W. Fotenos, BU51; Oct. '22
Lois (Breckley) Jadwin, LA51; Dec. '22
David W. Pearce, AR51; Dec. '22
Gerald L. Smith, HS, MD51; Dec. '22
David E. Adelstein, LA52; Nov. '22
Barbara (White) Newmark, FA52; Sept. '22
Robert C. Toth, EN52; Dec. '22
Allen D. Fleener, GB53; Oct. '22
David P. Gast, EN53, LA53, SI54; Oct. '22
Robert E. Lefton, LA53, GR58; Oct. '22
Joseph P. Lloyd, GR53; Nov. '22
William K. Maeda, LA53; Sept. '22
Elizabeth Meyer Oberdorfer, BU53; Oct. '22
Jane (Bridges) Evans, LA55; Oct. '22
Donald F. Finn, LA55; Sept. '22
Maria (Cabranes) Gilsdorf, HA55; Sept. '22
Helen (Keiser) May, LA55; Oct. '22
Thomas R. Skaggs, LA55; Dec. '22
Ruth (Green) Abramson, LA56; Oct. '22
Anthony F. Vaiana, LA56, LW58; Dec. '22
Marie (Nollman) Zubatsky, UC56; Dec. '22
Vasil P. Klyasheff, UC57; Dec. '22
Garvin D. Marty, BU57; Aug. '21
Lawrence C. Pakula, MD57; Nov. '22
Helen (Gross) Sisler, LA57; Sept. '22
Henry Eigles, EN59; Nov. '22
Edward P. Ortleb, GR59, GR63; Dec. '22

1960-1969

Beverly (Baptist) Hays, PT60, HA72; Dec. '22
Richard T. Moore, MD60; Jan. '22
Pauline (Walz) Webb, LA60; Nov. '22
Patricia (Dougan) Neilson, FA61; Nov. '22
Constance (Buszin) Seddon, LA61; Oct. '22
Maurice J. Chait, EN62; Dec. '22
Shirley (Speckhals) Love, LA62; Sept. '22
Judith (Zuckerman) Medoff, GR62; Sept. '22
Arthur M. Seltzer, BU62; Sept. '22
A. Paul Hasek, EN63; Dec. '22
Richard F. Reising, GR63; Dec. '22
Evelyn (Hopewell) Bitting, LA64; Dec. '22
Warren Curt, UC64; Nov. '22
Wylie C. Hembree, MD64; Dec. '22
Clifford E. Powell, EN64; Oct. '22
Edward J. Hill, GR65, GR70; Oct. '22
Robert E. Saur, EN65; Nov. '22
Richard S. Snyder, LW65; Nov. '22
Richard G. Westwater, UC65; Oct. '22
Karen (Lepp) Baird, GR66; Sept. '22
James R. Boatright, MD66; Nov. '22
Joan (Potthoff) Cronin, LA66, LW70; Sept. '22
John R. Cronin, GB66; Sept. '22
Philip A. Hall, SW66; Sept. '22
Roger H. Hinderliter, GR66, GR70; Dec. '22
Penelope (Parkman) Biggs, GR68, GR74; Nov. '22
Brian E. Graham-Moore, GR68, GR70; Oct. '22
Jiann J. Houng, SI68, SI70; Oct. '22
William C. Mixson, LA68, GR74; Oct. '22
Russell D. Begley, TI69, UC76; Nov. '22
Susan D. Guttman, LA69; Oct. '22
John R. Henderson, SW69; Oct. '22
Robert L. Pierce, SW69, SW79; Oct. '22

1970-1979

Roger Clark Yaw, AR70, GR74; Sept. '21
Michael A. Bruckdorfer, FA71; Nov. '22
Gordon N. Gephardt, MD71; Sept. '22
Mary Lee Holland, MD71; Nov. '22
Stephen P. Blend, LA72; Dec. '22
Alana L. Bowman, LW73, Dec. '21
Nancy B. Firestone, LA73; Oct. '22
Stephen T. Moriguchi, LA73, DE76; Jan. '20
Tony Abyad, SI74; Nov. '22
Shelby L. Jordan, LA74; Sept. '22
Philip C. Cunetto, GR75; Dec. '22
James W. Mayhall, GR75; Sept. '22
Richard S. Seymour, LA75, June '21
Sharon (Robinson) Bonte, GB77; Nov. '22
Donald A. Foushee, TI77; Oct. '22

1980-1989

Paul M. Gottlieb, LW80, GB80; Dec. '22
Nicholas A. Di Pasquale, GR81; Nov. '22
John A. Petrovich, LA81; Sept. '22
Eliot Goldman, LW83; Oct. '22
Lorie A. Vanchena, LA83, GR86, GR97; Dec. '22
Hal J. Pos, LW84; Dec. '22

1990-1999

Julie M. Kalman, EN90; Aug. '22
Laura (Zanaboni) Rabb, EN91, SI96, EMBA01; Dec. '22
Julia B. Carico, OT92; Nov. '22
Julie L. Bergsma, SW96; Sept. '22
Michael E. Merry, EN96; Nov. '22
Tonya Y. Standifer, PT99; Sept. '22

2000-2009

Michael A. Thissen, UC04; Dec. '22
Adrianne R. Williams, PMBA04, Nov. '22
James T. Merchant, LA07; Oct. '22
David R. Zenreich, BU08; Sept. '22

2010-2019

Martin L. Mathews, GR13; Nov. '22

2020-2029

Steven T. Vo, LA23, SI25; Sept. '22
Malik A. Williams, EN23; Oct. '22

Photo: Washington University Archives

170 years of progress

In 1853, the institution that is now Washington University came into existence. In the university's first decades, students attended classes at a downtown St. Louis campus that included this building at 7th and Chestnut. See more images as well as anecdotes from our 170-year history in the February digital issue: **source.wustl.edu/2023/02/celebrating 170 years/.**

Washington University in St. Louis

MSC 1070-390-03
University Marketing & Communications
1 Brookings Dr.
St. Louis, MO 63130-4899

NONPROFIT ORG.
U.S. POSTAGE PAID
WASHINGTON UNIVERSITY
IN ST. LOUIS
PRSRT STD

A sight to see

On a spring stroll near Graham Chapel, students enjoy the view of flowering trees. Almost 6,000 trees and more than 200 species can be found on WashU's Danforth Campus.

Photo: Devon Hill