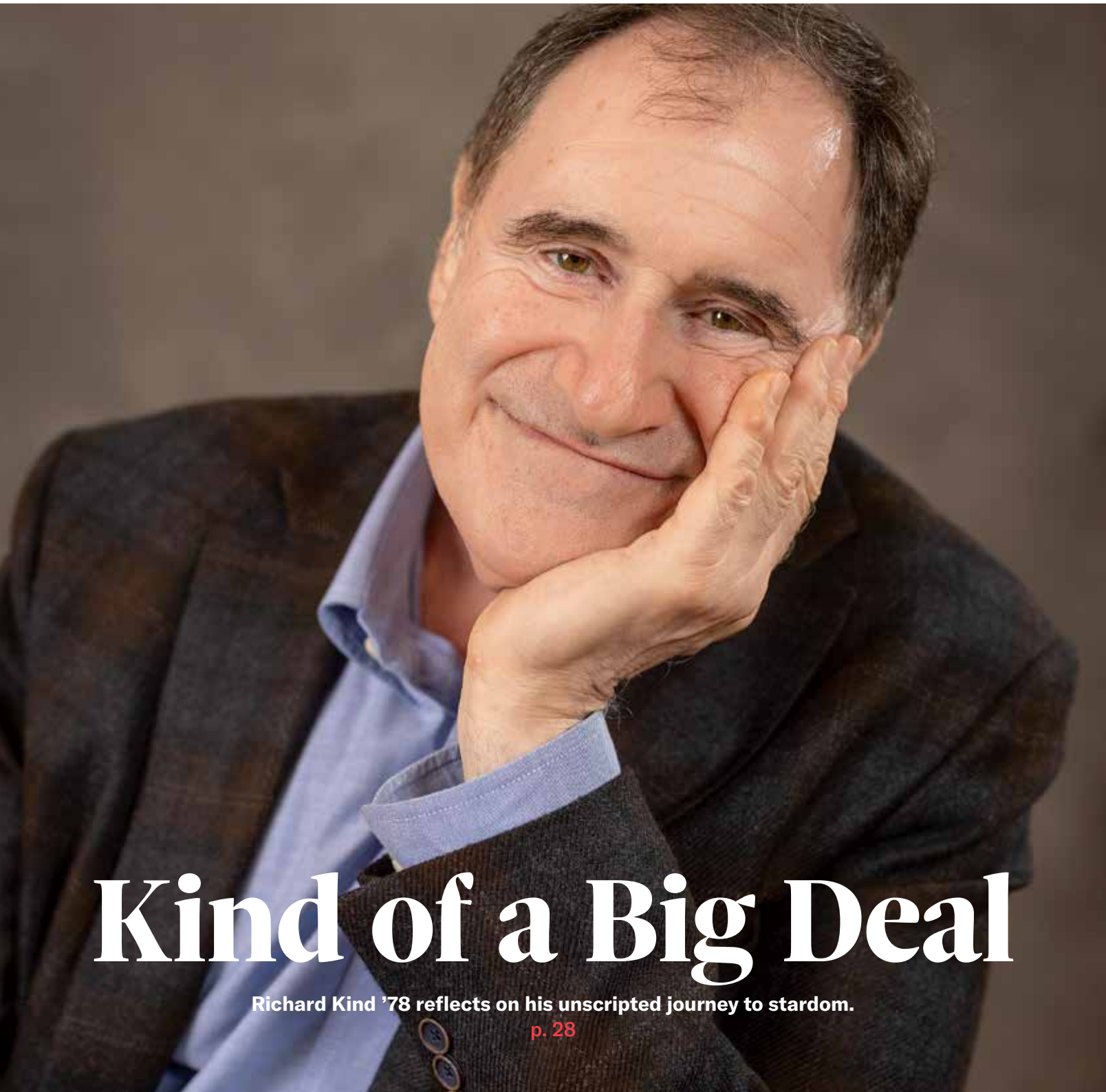
*"Laughter is the best medicine, so let's go be silly ... and pretend we're dinosaurs."* p. 40

# Northwestern

WINTER 2026



# Kind of a Big Deal

**Richard Kind '78 reflects on his unscripted journey to stardom.**

p. 28

**Run Before the Sun**
A jogger braves freezing temperatures for a run along Lake Michigan at dawn last February. Photographer Joshua Sukoff, a senior journalism major and prelaw student, ventured to the Evanston campus lakefill to capture the scene. “This image was taken moments before sunrise — and moments before my fingers started to turn numb,” he recalls. “It was quite barren. No one else was outside aside from two or three joggers. It was really serene.”

PHOTO: JOSHUA SUKOFF ’26

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One of the best defenders in NCAA women's lacrosse, Sammy White '25 returns to Northwestern to fulfill her dream of playing women's basketball.

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Richard Kind '78 began his prolific acting career on the Northwestern stage. *By Brenna Ehrlich Enos '07, '08 MS*

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**America's New Gilded Age**
Big tech has been cozying up to the federal government like never before. Historian Margaret O'Mara '92 explains what the unprecedented relationship means for the country. *By Jen Kirby '13 MS*


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**Put on a Happy Face**
In her one-woman comedy show, Liz Coin '19 explores themes of addiction, family and the incessant pressure to be positive.

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**← "The world is full of good jokes ... and bad jokes. ... Some people think joke writing is a mystery — but the secret is just structuring a funny idea in a way that helps audiences enjoy it."**

*— Jenny Hagel '09 MFA, performer and Emmy-nominated writer for* Late Night With Seth Meyers

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LIZ COIN: LUKE STAGE; BALLOON: SHANE COLLINS; PILL ILLUSTRATION: DANIEL HERTZBERG

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Engineering students won first prize in NASA's 2024 BIG Idea Challenge.

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On the cover: Richard Kind '78. Photo by Shane Collins. Back cover: Jonathan Rivnay's implantable biohybrid device. Photo by Shane Collins.





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# Talk Back

### A PLAY FOR OUR TIME

I was so inspired by the article and video "Theater in the Making" [fall 2025], which took us behind the scenes of last spring's production of *Man of La Mancha*. This kind of work makes Northwestern stand out as an incubator for the arts and a comprehensive place of learning. As theater department chair Henry Godinez said, students "don't come here just to be an actor. They … come here to become excellent, outstanding human beings. … That's what the world needs." For all of us who missed the chance to see this production, the article was a wonderful reminder of the importance of theater and dreaming dreams that aren't just possible — they change people's lives.
*Jane Kelley '76*
*Mequon, Wis.*

I was moved to tears by Northwestern's production of *Man of La Mancha* when I saw it live. The reinvention of the story to reflect the detention of immigrants in America in 2025 — Cervantes and his fellow prisoners transformed to modern-day cast-outs — was astute and sobering, and the performances lovely and illuminating. Henry Godinez and his staff and cast gave viewers a reason to look inward and ask if history is repeating itself — and if we are the villains this time.

The "making of" documentary that appeared online brought the production to life for me again. And the coda to the piece, when the cast unfurled the flags of their native countries, was a tribute to the diversity of the Northwestern community. Bravo to everyone involved.
*Peggy Walter '82*
*Evanston*

This brought back memories of the 1972 Dolphin Show production of *Man of La Mancha*. A fraternity brother recruited me to help build the set and then to work backstage during performances. Two other fraternity brothers were part of the cast, including John Reeger '72 as Don Quixote and Fred Applegate '77 as the Barber. Reeger went on to be a mainstay of Chicago regional theater, and Applegate has frequently appeared on television and on Broadway. Although I didn't continue with theater at Northwestern, being part of that production was a great experience.
*Clifford Garstang '75*
*Staunton, Va.*

### RESEARCH RISE

Thank you for reporting on several significant faculty research achievements ["Vital Research," fall 2025]. Achievements such as these would seem to be the main reason for Northwestern's considerable rise in stature in recent years. I hope that you will be reporting on more of these; we alums might never learn of them otherwise.
*C. David Harris '60, '61 MMus*
*Portland, Ore.*

### THE GIFT OF ACCESS

Thank you for sharing Kevin Boyle's essay "The Gift of Access" [Voices, fall 2025]. I'm the daughter of an Illinois Bell telephone installer who didn't dare dream that I could ever afford Northwestern's journalism school. But because Northwestern helped my parents and me, I earned two degrees from what is now the Medill School of Journalism, Media, Integrated Marketing Communications and went on to a very successful 40-year journalism career. To pay that forward, my estate plan includes funding a scholarship for graduate journalism students. So proud that Northwestern is continuing the tradition of helping all students attend and afford the school.
*Elida Witthoeft '79, '80 MS*
*Chandler, Ariz.*

As a freshman in 1960, I knew the family income from our 20-acre farm in Litchfield, Ill. And when an English professor asked for written, anonymous responses for a class survey, I wrote down $3,852. When the class results were distributed, the last category of "$5,000 or less" had a "1" beside it: me. But there I was, at Medill, with a chance to succeed. I worked hard, got experience working for suburban newspapers, and wrote sports and city council news and breaking news.

Thank you to the Robert R. McCormick Foundation scholarship program, the student senate scholarship fund, the Northwestern University scholarship fund, the night jobs I filled — typing electrical engineering research papers at the Technological Institute and running Patten Gymnasium's athletic equipment room — and all the other revenue sources I pursued. I've had a life I never dreamed of.
*Frank Sellers '64, '65 MS*
*Falls Church, Va.*

*Northwestern Magazine* welcomes signed letters from our readers. We reserve the right to edit all letters. Email letters@northwestern.edu.



# Voices

TRANSFORMATIONAL MOMENTS

## Crisis Teaches Us Who We Really Are

**By Bradley Akubuiro**

It took two plane crashes before Boeing was forced to truly look at itself.

When I stepped into my role as the company's chief spokesperson in 2020, just eight months after the second crash, I realized those tragic accidents didn't create Boeing's challenges. It made them impossible to ignore.

The warning signs were already there: the pressure from industry to move faster, the blind spots in how decisions were made. The crashes just tore away the facade.

And at that moment, Boeing had a choice. It's the same choice every organization — and every person — is confronted with when a crisis strips away appearances: Do we try to go back to the way things were? Or do we finally become who we should have been all along?

The true test of crisis navigation is much more spiritual than practical. It's about whether the values you claim to hold actually guide your decisions when there's no perfect playbook. Whether the culture you've built can survive being examined in the harshest possible light. Whether you're willing to look at what's broken and name it, even when that means accepting that you helped break it.

At Boeing, that looked like executives sitting across from families who'd lost everything and just listening. No talking points. No deflection. Just the weight of what our failure had cost them — and the commitment to ensure it would mean something.

I know personally what it means to be changed by loss. Twenty years ago, I got a call that rocked my world. One of my best friends had been killed in a drive-by shooting while sitting on his porch. He was 18.

I had a choice in that moment that I didn't fully understand at the time: I could let that loss break me, or I could let it shape me into someone who understands that time matters, that the work we do and the choices we make have weight because none of us knows how long we have to get it right.

I chose to keep moving forward. Not past it but through it. And that choice changed everything about how I view a crisis. It's not something that happens to you and then ends. It's something that reveals what matters and demands that you build your life around that truth.

You might not ever run a big company like Boeing. But you will face moments when the ground shifts beneath you and people are watching to see what you'll do.

Maybe it's a failed project that exposes deeper problems with how your team operates. Maybe it's a personal mistake that forces you to confront gaps between who you say you are and how you actually show up in the world.

You can try to get back to normal. Smooth it over. Wait for people to forget and move on.

Or you can do the harder thing: Accept that the crisis is showing you something true. That the way things were might have been the problem. That this moment — as painful as it is — is your chance to become something you couldn't have been before.

Crisis reveals you. And it might be the most important thing that ever happens to you.

BULLY PULPIT INTERNATIONAL

↑ **Bradley Akubuiro, right, speaks during an interview with *PRWeek* in Chicago.**

*Bradley Akubuiro '11 lives in Chicago, where he is a partner at Bully Pulpit International. He's an adjunct lecturer in the Medill School of Journalism, Media, Integrated Marketing Communications and serves on the school's Board of Advisers. He is the author of the forthcoming book* Faster, Messier, Tougher: Crisis Communications Strategies in an Era of Populism, AI and Distrust.

SOUND OFF

# Chat With a 'Cat

Which Northwestern alum would you most like to meet?

**Thomas Bakos, a senior economics major from New York City**

If I could meet one alum, it would be comedian Ziwe Fumudoh '14. I was on the debate team, and it's fun for me to engage in a little back-and-forth. I like to be pushed in a conversation. I think I have a quick wit, but I would like to know for sure if I could really handle a sit-down with Ziwe.

**Madison Morgan, a senior journalism major from Tarrytown, N.Y.**

If I could meet any alum, it would be Mara Brock Akil '92. My comfort show, *Girlfriends*, was created and written by Akil. I admire how she's used her journalism education to build a creative career. The transferable skills clearly speak volumes.

Akil's face is on the wall in Fisk Hall, so I feel like I've already met her. We've just never exchanged real words.

**Natalie Roots-Nowakowski, a junior political science and history major from Washington, D.C.**

I'd like to meet professional GeoGuessr player Jake Lyons '22. I am co-founder and co-president of Northwestern's Cartography Club and love to play GeoGuessr — an online geography game. I would ask Jake how he got into such a niche profession and if any part of his time at Northwestern contributed to that. And I'd ask for tips to improve my GeoGuessr skills!

**Jaeda Tagoe, a senior psychology major from Columbus, Ohio**

Meghan Markle's journey to become the Duchess of Sussex is inspiring. I remember watching the glamorous royal wedding of Harry and Meghan '03 when I was in eighth grade. However, I also remember all the criticism Meghan faced. The media scrutinized nearly everything about her: her skin color, her hair, even her past. Yet she rose above the criticism. Before I knew her as Rachel from *Suits*, before I even knew her as Meghan the Northwestern alum, I knew her as one of the first Black women to marry into royalty, despite what the world said about her.

As a Northwestern senior, it is inspiring to know that former and future world leaders and social advocates have walked the same path — probably down Sheridan Road — that I do today.

**Chloe Pestano Que, a senior journalism major from Manila, Philippines**

If I could meet any Northwestern alum, it would definitely be George R.R. Martin '70, '71 MS, '21 H. Growing up, my parents watched *Game of Thrones* religiously, and now our favorite family ritual is watching *House of the Dragon* together. My goal is to pursue creative writing in some form, and I'd love to pick his brain about how he built such an expansive, immersive fictional world.

SOCIAL FEEDS

Do you recognize this spot on campus? Here's a hint:

*That you have but slumbered here,*
*while these visions*
*did appear ...*

See answer below.

"At dusk, the lighting makes it look like *A Midsummer Night's Dream*."

**Marge Sanders Gambow**

"We were married here in July 1974. What a wonderful place!"

**Lindsay Wood Davis '72**

"Just discovered this serene garden this weekend. Was so peaceful! 😇 "

**Crystal Johnson**

"One of my favorite 'hidden' study spots! 💜💜💜 "

**Tamra Powell Drees '91**

Answer: The Shakespeare Garden

BAKOS, ROOTS-NOWAKOWSKI AND TAGOE: JOSHUA SUKOFF '26; GARDEN: BILL ARSENAULT






MY NORTHWESTERN DIRECTION

# Freelancing Fire Chief Fulfills Journalism Dream

**By Chris Serb '95 MS, '09 MBA**

Chris Serb has worked for the Chicago Fire Department since 1999. His latest book, *Eckie: Walter Eckersall and the Rise of Chicago Sports*, was released in October.

We're there when you need us. That's the Chicago Fire Department (CFD) motto. And for my entire 26-year-plus tenure with the CFD, that's been my duty. I have been a first responder to many of the seminal events in the city's recent history: the fatal Lincoln Park porch collapse in 2003; the "Snowmageddon" blizzard of 2011; and the civil unrest after the murder of George Floyd in 2020.

I serve as deputy district chief of the CFD's 1st District, a 45-square-mile area that stretches from Lincoln Park on the North Side to the South Side neighborhoods of Woodlawn and Englewood.

Being a big-city fire chief is a far different career than I had imagined for myself. I began my master's degree at the Medill School of Journalism, Media, Integrated Marketing Communications in 1994 and dreamed of becoming a feature writer for a major national magazine.

In the summer of 1995 — when most of my friends were finishing the master's program with a quarter at Medill's Washington, D.C., newsroom — I took a couple months off. Short on cash and needing resume-building experience, I returned to my teenage job as a beach lifeguard in Chicago's Rogers Park neighborhood while doing an internship at a trade magazine.

That summer the CFD offered an entrance exam for the first time in 10 years. I had always been drawn to the fire service, but opportunities were rare. Fortunate to be in Chicago instead of D.C., I took the test and landed on the "well-qualified" list. The qualified applicants waited patiently as the CFD hired us at random, 100 or so at a time, over the next six years.

> **"Even though the job came with an initial 25% pay cut ... I looked forward to the adventure and said 'yes.'"**

In fall 1995 I went to D.C. to finish my master's degree, then spent the next four years as a writer and editor. In December 1999 the CFD finally called. Even though the job came with an initial 25% pay cut from my senior editor role, I looked forward to the adventure and said "yes" almost immediately.

A Chicago firefighter's schedule is 24 hours on duty and 48 hours off. This leaves ample time for a side job, so many firefighters work in the building trades or as attorneys or real estate agents. But I might be the only CFD member moonlighting as a freelance writer.

The balance between these two very different roles energizes me and keeps life interesting. In the fire service I inhabit a practical and often very physical world. Then, as a freelance writer, I exercise my mind by conducting research and working the phones. Over the years I've churned out hundreds of newspaper and magazine articles and published three books.

Meanwhile, I steadily climbed the CFD career ladder. And as my path became clear, I returned to Northwestern in 2006, this time to the Kellogg School of Management for a part-time MBA. There I honed the leadership and management tools that I continue to rely on, both in my emergency response duties and during special assignments for CFD curriculum and policy development.

During my Kellogg years I met Emily Cosgrove '96 (now Emily Serb) at a party. We bonded over our shared Northwestern background; now married for 15 years, we have two tween daughters.

My Northwestern education led directly to two rewarding careers, and indirectly to marriage and family life. Maybe I never nabbed that staff writer job at *The New Yorker*, but in hindsight, I couldn't have imagined a better outcome.

Illustration by Arthur Mount

FUN-DAMENTALS

# How to Write a Good Joke

*Jenny Hagel '09 MFA loves — like, really loves — to give advice. In fact, she's made an entire show about it. The Emmy-nominated writer and performer for* Late Night With Seth Meyers *has been touring the country with her interactive comedy show* Jenny Hagel Gives Advice, *during which she and a guest performer invite audience members to ask questions about work, love, family and more. After bestowing her wisdom on Chicagoans at the Lincoln Lodge in September,* Northwestern Magazine *asked Hagel for some advice too: How do you land a laugh?*

The world is full of good jokes ... and bad jokes. And *very* bad jokes. So what makes a joke *good*?

Sometimes it's an intangible bit of magic that can't be explained. But more often, it's thanks to the rules of good joke-writing. There are a million rules — but we don't have time for that. So here are my top three:

**1) Make it concise.**
Extra words weigh down a joke and make it harder to land the punch line. For example, here's a joke:

> *The New York Times* published a profile this week about an archaeologist from Sweden who sailed on historically accurate replicas of Viking ships to learn about medieval trade routes. So I guess the main takeaway is that men will do anything to avoid therapy.

Here's that same joke, minus all the fluff:

> *The New York Times* published a profile about a man who sailed on replicas of Viking ships to study medieval trade routes. That story again: Men will do anything to avoid therapy.

Both versions of the joke are shockingly true. But the second one is quicker and snappier.

**2) Put the most important information close to the punch line.**
A joke's setup usually has one crucial piece of information that makes the punch line work. Help your audience connect the dots by putting the setup and punch line as close together as possible. Here's one way to tell a joke:

> A man has been friends with a female swan for 37 years, according to a recent report by authorities in Turkey. But only because she won't let him out of the friend zone.

And here's another way:

> A man in Turkey has reportedly been friends with a female swan for 37 years. But only because she won't let him out of the friend zone.

I think we can agree the second version is better. And I think we can agree that that man should stop letting that swan play with his emotions.

**3) Have a point of view: yours!**
Don't write a punch line you think will be funny to someone else. Write one that conveys how you *actually* feel. There are probably others who feel that way too — your joke will connect with them and make them laugh harder than a generic joke written for a generic audience. Here's one I wrote several years ago:

> A brewery in New York is selling a *Game of Thrones*–themed beer. It's like a regular beer, except your co-workers won't shut up about it.

Sure, I could have written a joke about dragons or red weddings or ... whatever *Game of Thrones* is about. But I didn't watch the show, so my *real* feeling was that I was tired of people talking about it. Did the joke work? You bet your Littlefinger it did.

Some people think joke writing is a mystery — but the secret is just structuring a funny idea in a way that helps audiences enjoy it. (The real mystery is why an adult man is friends with a swan.)

*Jenny Hagel lives in New York City. Her book* Advice No One Asked For *is now available for presale.*


ZHEN QIN

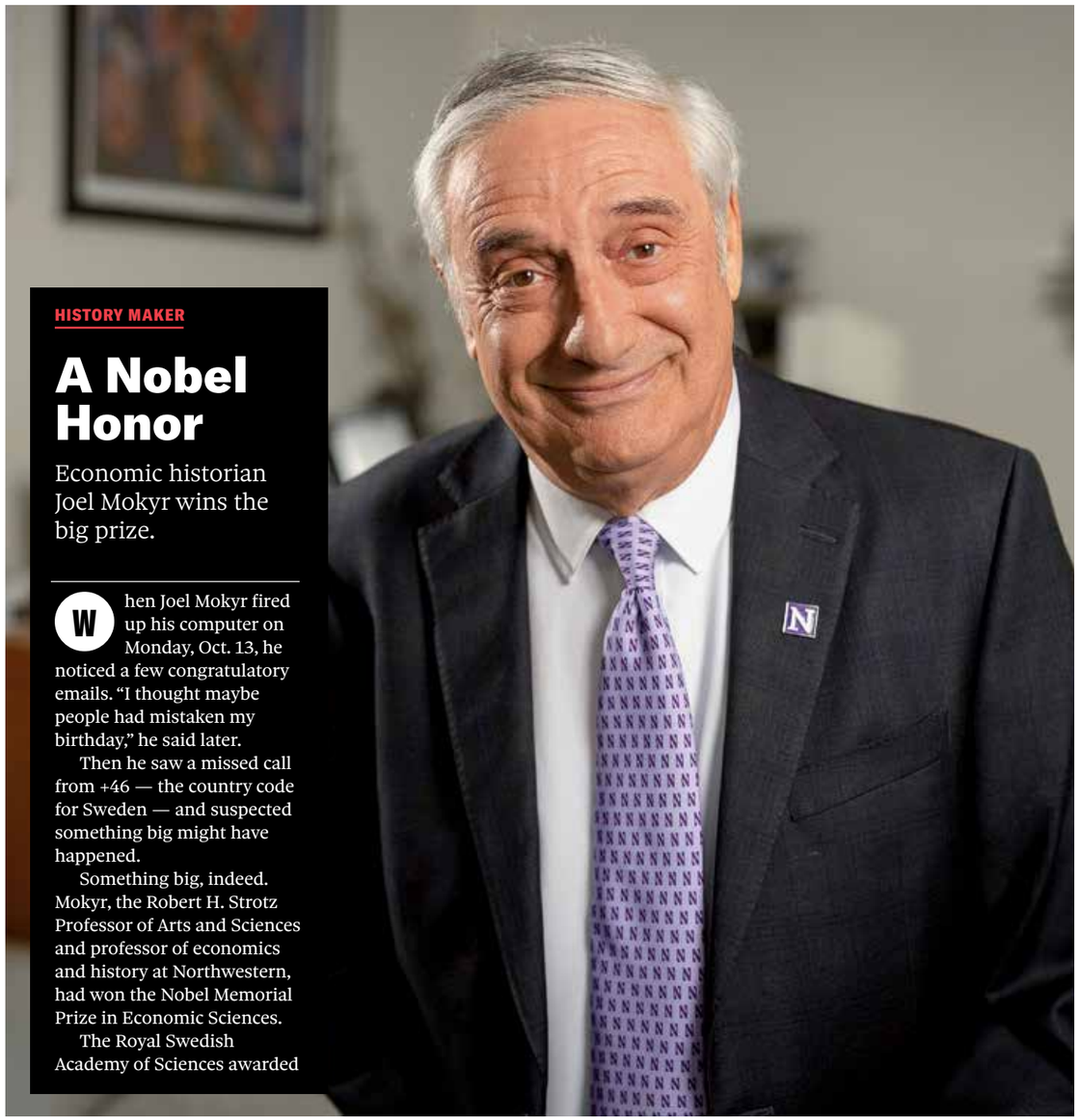


# News

**Plant biologists go global for research** p. 11

**Lacrosse, basketball ... Sammy White does it all** p. 12

**Inflatable metal balloons for the moon** p. 12



HISTORY MAKER

## A Nobel Honor

Economic historian Joel Mokyr wins the big prize.

When Joel Mokyr fired up his computer on Monday, Oct. 13, he noticed a few congratulatory emails. "I thought maybe people had mistaken my birthday," he said later.

Then he saw a missed call from +46 — the country code for Sweden — and suspected something big might have happened.

Something big, indeed. Mokyr, the Robert H. Strotz Professor of Arts and Sciences and professor of economics and history at Northwestern, had won the Nobel Memorial Prize in Economic Sciences.

The Royal Swedish Academy of Sciences awarded

MOKYR: SHANE COLLINS; WHITE ILLUSTRATION: LESLIE-ANNE MOCK


↑ Joel Mokyr at his Nobel Prize press conference in October

the 2025 prize to three economists for showing how technological progress has led to sustained economic growth. Mokyr received half of the prize; the other half is shared by Philippe Aghion of the Collège de France and the London School of Economics and Peter Howitt '73 PhD of Brown University. Howitt earned a doctorate in economics from Northwestern.

Despite being honored with myriad awards throughout his career, including being named a 2021 Citation Laureate — an international honor that is sometimes called a Nobel predictor — Mokyr believed his work was outside the Nobel Prize committee's range of interests. In exchanges with colleagues about the possibility of winning a Nobel, Mokyr often joked: "I am more likely to be elected pope than win — and I am a Jew."

Mokyr has taught economics and history at Northwestern for more than five decades. An expert on the economic history of Europe, specializing in the period 1750–1914, Mokyr identified three key requisites for growth: useful knowledge, mechanical competence and institutions conducive to technological progress.

During his Nobel press conference at Northwestern's Cahn Auditorium, Mokyr recalled a lesson from the late Nobel Prize winner Robert Fogel. "Economics must deal with economic history," Fogel told Mokyr. "For economics to work without economic history is like evolutionary biology without paleontology. If you don't have paleontology, you miss 99.5% of all of the species that ever walked this earth."

Without studying the "economic systems, economic societies and economic interactions ... that have disappeared," Mokyr said, "we're missing a great deal of what economics teaches us."

Mokyr's research focuses on changes in technology and economic growth, and his optimistic perspectives have been widely cited by major media outlets. His latest book, *Two Paths to Prosperity: Culture and Institutions in Europe and China, 1000–2000*, focuses on the cultural changes that determined the vastly different economic trajectories of these two civilizations.

With no plans to retire, Mokyr said, "One of the joys of my life [at Northwestern] has been training ... brilliant graduate students," many of whom are now teaching economics and history at top universities around the world. "Some of my students have their own students, and these students have their students, so I have intellectual great-grandchildren, which is kind of an awesome feeling."

Mokyr is the fourth Northwestern faculty member to win a Nobel. In 2016 the late Sir Fraser Stoddart, the Board of Trustees Professor of Chemistry, was awarded the Nobel Prize in chemistry. In 2010 the late Dale T. Mortensen, the Ida C. Cook Professor of Economics, won the Nobel Memorial Prize in Economic Sciences; and in 1998 the late John A. Pople, the Board of Trustees Professor of Chemistry, received the Nobel Prize in chemistry.



CONSERVATION

# Rooted in Research

**Faculty, students and alumni of Northwestern's Program in Plant Biology and Conservation study carnivorous plants, tequila's source, life in forest canopies and more.**

### HOLDING WATER
Mexico

**Due to climate change and rising global demand for tequila and mezcal, the biodiversity of agave plants (above) is now threatened. Adjunct assistant professor Hector Ortiz is developing new methods for agave cultivation that draw from the ancient agricultural practices of Indigenous peoples in Mexico. For thousands of years, Indigenous communities have used agave plants for food, textiles and fermented drinks. When faced with arid conditions, they developed the first dryland farming systems for agave — drought-tolerant systems that focus on precipitation retention in soil. "My research looks to lessons left in history by ancestral people — lessons that can both benefit Indigenous communities and help us develop new agricultural practices for the future of agave," says Ortiz.**

### AN ENDANGERED FAMILY TREE
United Kingdom

**As a graduate student at Northwestern, Olivia Grace Murrell '23 MS studied the nearly extinct corpse flower (right). She traced the lineages of corpse flowers held in living collections around the world to evaluate how current management practices have affected the species' genetic diversity. Now a doctoral student at Manchester Metropolitan University and a conservation scholar at Chester Zoo in the U.K., she is applying the same approach to study threatened tropical pitcher plants, a group of carnivorous plants that eat spiders and insects.**

### CANOPY LIFE
Panama

**Grad student David "Max" Jones '24 studies animals living in the canopies of forest fragments — stands of trees that have been separated due to land development, such as pineapple plantations and cow pastures — in the Panama Canal watershed. Jones is collaborating with the Smithsonian Tropical Research Institute and a researcher at Germany's Max Planck Institute of Animal Behavior to monitor these canopies using wildlife cameras. "We're seeing way more species that rely on these ... very isolated little patches of forest than we ever would've dreamed," says Jones (left), who hopes his introductory survey serves as a call to protect forests.**

### FOSSIL FRENZY
Mongolia

**Adjunct professor Patrick Herendeen ventured to Mongolia in 2011 in search of fossil evidence of flowering plants from the Early Cretaceous period. Instead, he and his team found a diversity of gymnosperms — plants that produce exposed seeds — including relatives of pines and ginkgo (right), and an array of extinct gymnosperms that have no living relatives. "That is the way paleontology works. You go looking for one thing and end up finding something else," says Herendeen, who last visited Mongolia in 2019. His research team continues to examine fossil collections from past field trips.**

### THAT'S NOT MY NAME
Tanzania

**Botanic gardens are havens for endangered plants. But plants in these gardens sometimes lack proper identification and documentation. Grad student Luciana Naftal Piniely's research focuses on Tanzanian cycads — an ancient group of seed plants — that have been misidentified or mislabeled. Piniely (above), who grew up in Tanzania, uses DNA barcoding (a molecular identification method) to confirm the plants' identities and determine their geographical origins. The goal is to improve conservation efforts and facilitate restoration.**

MOKYR: SHANE COLLINS; AGAVE AND CORPSE FLOWER: GETTY IMAGES
TICKER ILLUSTRATIONS: LESLIE-ANNE MOCK

## The Ticker

*New courses for students*

● Taught by assistant professor of instruction Rajan Kumar '14, '14 CERT, **Materials for the Energy Solution** introduces students to modern energy technologies. Students build and test their own lithium-ion batteries and solar cells.

● **Cultural History of Beer and Brewing From Germany to Chicago**, taught by associate professor Robert Ryder '10 PhD, examines the history of beer styles, festivals and brewing regulations in Germany from the Middle Ages to the present day. The class also covers German beer-making in Chicago since the 1850s.

● **Interactive Museum Exhibit Design**, taught by assistant professor Duri Long, explores the role that museums play in public education and the role technology can play in making museums interactive. Students work together to design a detailed 3D model for a novel museum exhibit.

● Developed by assistant professor Bihter Esener, **Medievalism in Video Games: Art, Culture and Theory** examines how real medieval environments and objects are reimagined and reconstructed in video games.

KILLER CROSSOVER

# Hoop Dreams

Sammy White brings her lockdown defense from the lacrosse field to the hardwood.

Sammy White jokes that she wasn't quite ready for the real world. After four years as one of the best defenders in NCAA women's lacrosse, she could have easily left Northwestern on a high note. But White '25 had an unfulfilled dream — to play women's basketball. Now a graduate student, she's back in a Wildcats uniform.

Her move is not without precedent. Pat Spencer '20 MA, the nation's best men's college lacrosse player in 2019, spent one season with the Wildcats men's basketball team and now plays for the NBA's Golden State Warriors.

"When Pat Spencer did it, I thought, 'Oh, it's doable,'" says White. "I couldn't turn down the opportunity to play basketball in the Big Ten."

White was a three-sport athlete (she played lacrosse, basketball and soccer) at Dulaney High School in Timonium, Md., where she was a point guard in basketball, scoring 1,000 points in three seasons and averaging 23 points per game as a junior. For Northwestern lacrosse, she was a tenacious defender who helped lead the Wildcats to four Final Four appearances and a national title in 2023. She was First Team All–Big Ten in 2025 and Big Ten Freshman of the Year in 2022.

"Her toughness and leadership are a great addition to the Wildcats," says Joe McKeown, who is in his 18th and final season as head coach of Northwestern women's basketball.

Though she won't have a stick to wield at her opponents, White says her defensive skills transition well to the hardwood. "Playing basketball in high school made my lacrosse defense so much better, because it's the same movements," says White. "Just keep the person in front of you. The hardest part is the fouls. In lacrosse, you can touch someone and deter them, but in basketball, if you put two hands on someone, it's a foul."

The 5-foot-6-inch White anticipates playing shooting guard and small forward for Northwestern. "We have a lot of talent on the team," she says. "I might not be the best one on the court, but my goal is to make the person next to me better. I am committed to showing up every day and giving it my best."

↑ Sammy White hopes to one day work in sports broadcasting.

↑ Meet senior Trevor Abbott at alummag.nu/balloons.

BALLOONS ON THE MOON

**Northwestern engineering students took the top prize** at NASA's 2024 Breakthrough, Innovative and Game-Changing (BIG) Idea Challenge, which asked teams to develop inflatable systems that could benefit future lunar missions. The students designed an inflatable metal tank that can safely store cryogenic fluids like liquid hydrogen and oxygen for long periods of time in the harsh lunar environment. Made of thin metal sheets, the structure can be compacted for launch and then inflated once on the lunar surface, a critical capability as NASA looks to build a sustained human presence on the moon.

WHITE: RYAN KUTTLER '23/NORTHWESTERN ATHLETICS; ABBOTT: SHANE COLLINS

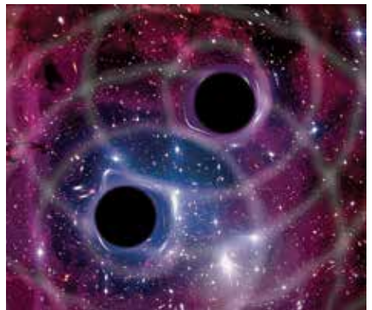
'CAT TALES

## Blast From the Past

**With key contributions from Northwestern scientists, the first gravitational waves were detected on Sept. 14, 2015, confirming a major part of Einstein's 1915 general theory of relativity. Heralded as the greatest discovery in the modern age of astronomy, the detection marked the first observation of a cosmic event through its gravitational warping of space-time.**

**The U.S. Laser Interferometer Gravitational-Wave Observatory (LIGO) detected the waves from the collision of two black holes that occurred an estimated 1.3 billion years ago. Vicky Kalogera, director of Northwestern's Center for Interdisciplinary Exploration and Research in Astrophysics, led the University's team of LIGO Scientific Collaboration researchers and was among the first to learn the news.**

**Prior to this discovery, nearly all knowledge about the universe came from electromagnetic waves like X-rays and radio waves. In the decade since, observations of gravitational waves have provided about 300 measurements of black holes, neutron stars and other masses.**



BLACK HOLES: ISTOCK; KHANNA: SHANE COLLINS

→ Nikash Khanna's docuseries went viral on TikTok.

PERSONAL HISTORIES

# Tell Me Your Story

Nikash Khanna's *Portraits* interviews resonate with audiences.

If you grow up skateboarding around New York City, like Northwestern sophomore Nikash Khanna did, you are bound to meet interesting people. But not everyone decides to interview those people ... and then create a documentary series that goes viral on social media.

Khanna launched his YouTube docuseries *Portraits* in October 2022. The series features informal interviews ranging from less than 60 seconds to 40-plus minutes. Khanna's subjects are "anyone I find intriguing," he says, including people often stigmatized by society — people struggling with addiction or homelessness, formerly incarcerated people, school dropouts and others.

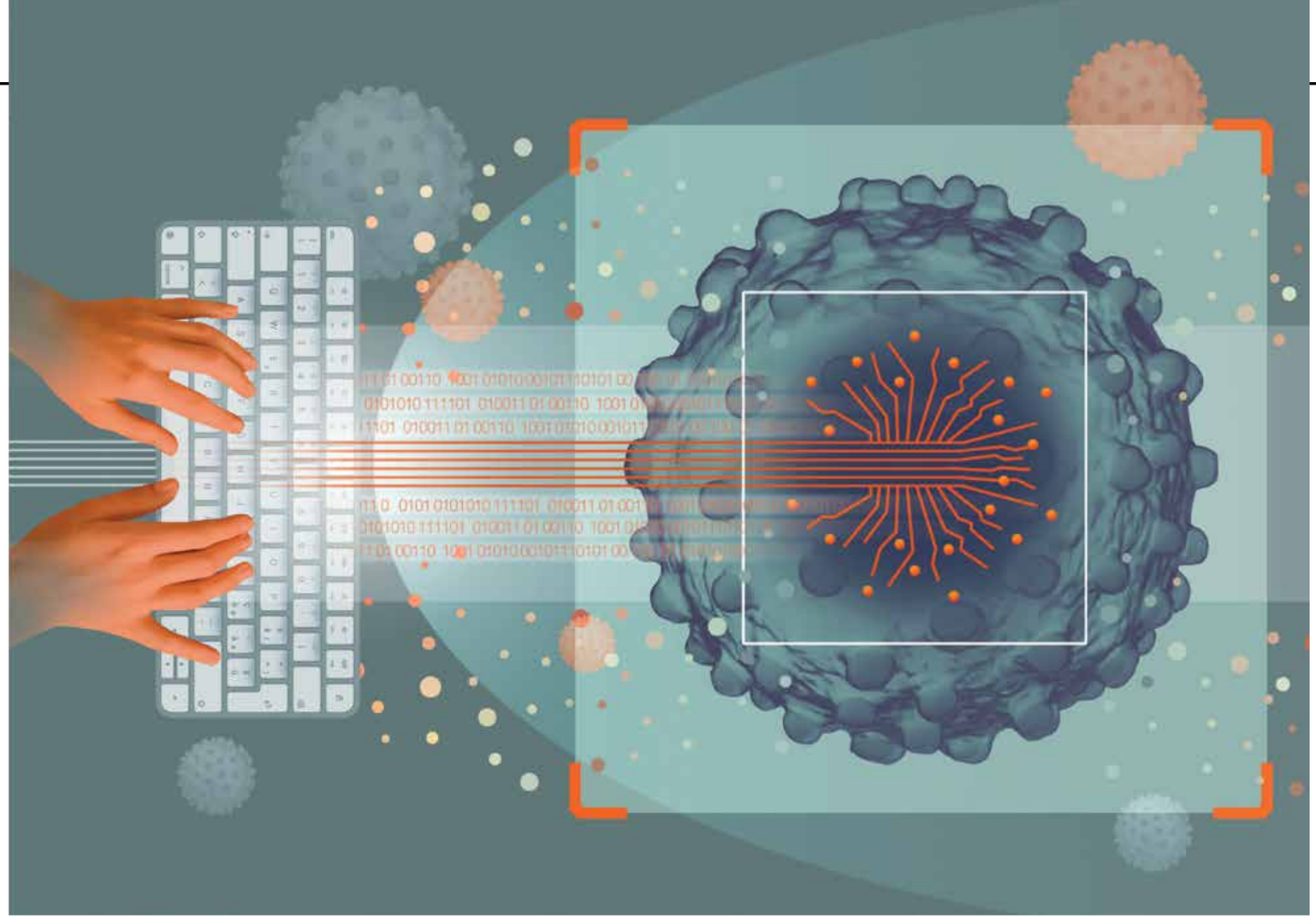
Khanna's goal is to connect viewers to stories they would not encounter otherwise. "When I looked around me, there were so many real stories I wanted to tell," he says.

Those stories have resonated with people. With more than 30 *Portraits* published, Khanna has amassed more than 230,000 TikTok followers, and his videos have received over 100 million views across social media.

A radio/television/film major, Khanna says his friends and professors have encouraged him to "do what you think is important." For Khanna, that means forming genuine connections. "I see other interviews online that feel exploitative ... or superficial," he says. "That doesn't sit right with me. ... I try to keep in touch with the people I interview."

*Learn more at alummag.nu/Khanna.*

# Discovery



BIOMEDICAL ADVANCES

## Hacking Cancer's Survival Code

Disrupting cancer cells' ability to adapt significantly improves the effectiveness of chemotherapy.

Cancer's defining trait is its relentless ability to survive — even against attacks from the immune system and harsh medical treatments.

Northwestern biomedical engineers have developed a first-of-its-kind strategy that prevents cancer cells from evolving to resist therapies. The approach nearly wiped out cancer in lab-grown cells and significantly enhanced chemotherapy's effectiveness in a mouse model of cancer.

"Cancer cells are great adapters," says Vadim Backman, the Sachs Family Professor of Biomedical Engineering and Medicine at the McCormick School of Engineering, where he directs the Center for Physical Genomics and Engineering. "They can adapt to almost anything that's thrown at them, [including] chemotherapy, immunotherapy and radiation. When they resist these treatments, they live longer and acquire mutations.

"We did not set out to directly kill cancer cells. We wanted to take away their superpower — their inherent ability to adapt, to change and to evade."

Backman's team previously discovered that cancer's ability to adapt depends on how chromatin — a collection of molecules including DNA, RNA and proteins — is organized within a cell's nucleus.

Chromatin self-organizes into "packing domains" — distinct, compact regions of molecular structures that play a crucial role in regulating gene expression. The three-dimensional architecture of chromatin packing allows cells to physically encode memories of gene transcription patterns. A cell's transcriptional memory dictates how the cell functions, and problems with transcriptional memory can lead to diseases and might even drive aging.

When chromatin packing is disordered, a cell demonstrates an increased ability to adapt in order to resist treatments.

"Many impactful diseases of the 21st century are, to a large extent, related to cell memory — cells forget what they should be doing," Backman says. "Cells maintain memory for a long time, but they can also develop spurious memories or lose memories. Cancer cells take that to the extreme. I think what we have found here is the source code of cell memory."

The team built a physics-based computational model that analyzes chromatin organization to predict whether cancer cells will survive chemotherapy treatment. When tested across multiple cancers and drug classes, the model accurately forecast cell survival before treatment began.

Next, Backman and his team sought to change the organization of chromatin to explore how it might affect cancer's survival. They screened various existing drugs for candidates that could reshape chromatin inside the nucleus. Ultimately, they selected celecoxib, an FDA-approved anti-inflammatory drug that happens to alter chromatin as a side effect.

Backman's team tested celecoxib's effectiveness by combining it with a common chemotherapy drug in a mouse model of ovarian cancer. The combined treatment reduced the cancer cells' adaptation rates and inhibited tumor growth — outperforming the chemotherapy drug by itself.

By making chemotherapy more effective, the strategy could enable physicians to prescribe treatments that include lower doses of chemotherapy for patients.

"Chemotherapy can be so hard on the body," says Backman, who is also professor of medicine and biochemistry and molecular genetics at the Feinberg School of Medicine. "A lot of patients, quite understandably, sometimes choose to forego chemotherapy. They don't want to suffer in order to live a few months longer. Maybe reducing that suffering would change the equation."

Backman says celecoxib and similar drugs could become a new class of compounds that can prevent cancer cells' adaptive abilities. He says modulating chromatin organization might be the key to treating various complex diseases, including neurodegenerative diseases, heart disease and more.

**"Cancer cells ... can adapt to almost anything that's thrown at them."** — Vadim Backman

Illustration by Stuart Briers

BODY OF WORK

## Muscular and Molecular Marvels

1 Northwestern engineers developed **a flexible artificial muscle, paving the way for robots to move more naturally**. Most robots today are made from rigid materials and are unable to adapt smoothly to uneven terrain or perform delicate tasks without breaking objects. The new synthetic muscles help dampen movement and absorb shock.

2 Professor Samuel I. Stupp's **"dancing molecules" therapy received Orphan Drug Designation** from the U.S. Food and Drug Administration, which provides financial incentives for the therapy's development. The therapy harnesses molecular motion to reverse paralysis after traumatic spinal cord injuries. Stupp '77 PhD hopes to begin clinical trials in late 2026.

3 Northwestern scientists discovered **how the body detects dangerous heat at the molecular level — a mystery until now**. High temperatures activate TRPM3, a protein found in the brain and in the skin's sensory neurons, causing TRPM3 to open like a gate. This allows ions to flow into a cell, triggering nerve signals that the brain interprets as heat or pain. The study helps explain how the body distinguishes harmless warmth from dangerous heat.

# Innovation

BUSINESS

## In the Nyck of Time

Startup helps small businesses streamline procurement with artificial intelligence.

Procurement management is essential for small and medium businesses (SMBs) — but it's also tedious and time-consuming work. Now there's a virtual employee to help with that.

Nyck AI uses artificial intelligence to automate the procurement process and save SMBs time and money. Born out of the Kellogg School of Management's New Venture Discovery course, the web-based platform condenses hours of painstaking work into one 15-minute set of calculations.

As part of the course, MBA students Marc Davis, Dániel Sütheő, Alexandre Rossi Alvares '25 MBA and Arthur Koefender '25 MBA conducted interviews with staff at more than 60 SMBs and discovered that a key pain point for employees was procurement — a suite of tasks that includes checking inventory, reviewing incoming shipments, calculating and drafting purchase orders, and emailing suppliers. Employees reported spending sometimes 20 or more hours per week on procurement.

A trip to the Milwaukee headquarters of the midsize chain Colectivo Coffee solidified the group's theory that SMBs would benefit greatly from a virtual employee who could handle the tedium of procurement, Davis says. When Colectivo needed to order coffee beans, employees would review inventory in a spreadsheet, forecast demand and create a purchase order. Then an employee would have to reach out to Colectivo's suppliers. If certain products were out of stock, delayed or only available in certain quantities, Colectivo employees would have to look to other suppliers or rearrange orders.

"But with Nyck AI, you just upload inventory data," Davis says. "It calculates exactly what you need to purchase for every single item instantly. It also helps you optimize, making sure to hit the quantity and shipping requirements. Then it auto-drafts all the documents and the email to the supplier, and all you do is hit send."

And when suppliers respond with out-of-stock notices or other issues, Nyck AI will find an alternative supplier, prepare a purchase order and draft a response to the original supplier, Davis says. An employee then reviews Nyck AI's proposed solution and approves it, and "the whole situation is taken care of."

The founders say Nyck AI can help SMBs reduce the time spent on procurement by 90%, realize 2% to 5% cost savings on procurement spending, improve cash flow and minimize errors.

Last summer Nyck AI took part in Jumpstart, The Garage's summer pre-accelerator program, and won first place in the program's Demo Day.

From left, Nyck AI head of product Dániel Sütheő, CEO Marc Davis and chief technology officer Deepika Sampangi

NYCK AI: SHANE COLLINS; CATALYST: GETTY IMAGES

CODING CATALYST

**Not a coder? No problem!** A new workshop series hosted by The Garage empowers students to tap into the power of artificial intelligence. Catalyst: Building With AI provides hands-on sessions that teach students to use generative, no-code and low-code AI tools to prototype faster, market smarter and build more effectively. The series was launched in Evanston last spring and has since expanded to the Chicago campus.

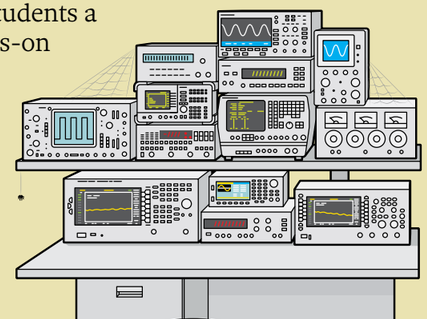




INVENTION

## A Pocket-Sized Electronics Lab

Angie Mercurio '17 MS dreamed of becoming a Disney roboticist. But as an undergrad, she never had access to her school's electronics lab — so she didn't pick up the requisite hands-on electrical engineering skills. Then, as a master's student in Northwestern's Engineering Design Innovation program, she discovered nLab — a credit card–sized device that turns your laptop into an electronics lab. Created by Northwestern engineering professor Nick Marchuk '10 MS and David Meyer '12 MS, '15 PhD in 2014, the nLab toolkit gives students a chance to practice hands-on circuit-building. Using nLab, Mercurio gained the skills to build a tech design portfolio that helped her land a job at Disney. A few years later, when a colleague saw nLab on Mercurio's desk and expressed interest in it, Mercurio realized others could benefit from nLab too. She quit her job and applied to the Kellogg School of Management to focus on nLab's business development. An MBA student and Zell Fellow, Mercurio is now nLab's CEO, and Marchuk, her husband and co-founder, is chief product officer. In 2025 nLab won multiple awards at Northwestern's VentureCat and Jumpstart Demo Day competitions.



### A LAB ON THE GO

**Plug nLab into your laptop, fire up the nLab app, and you have all the tools of an electronics lab at your fingertips. nLab replicates the functionality of an oscilloscope (used to measure electrical signals), a function generator (used for testing circuits) and a power supply unit — all large, expensive machines. The nLab starter kit comes with everything needed to build 12 projects.**

### CRUCIAL TECH SKILLS

**nLab's YouTube educational platform provides the circuit-building know-how. "You come away with a college-level understanding of how electronics work," says Mercurio. nLab is targeted toward self-motivated students looking for an on-ramp into electronics and older adults seeking skills to get into the field.**

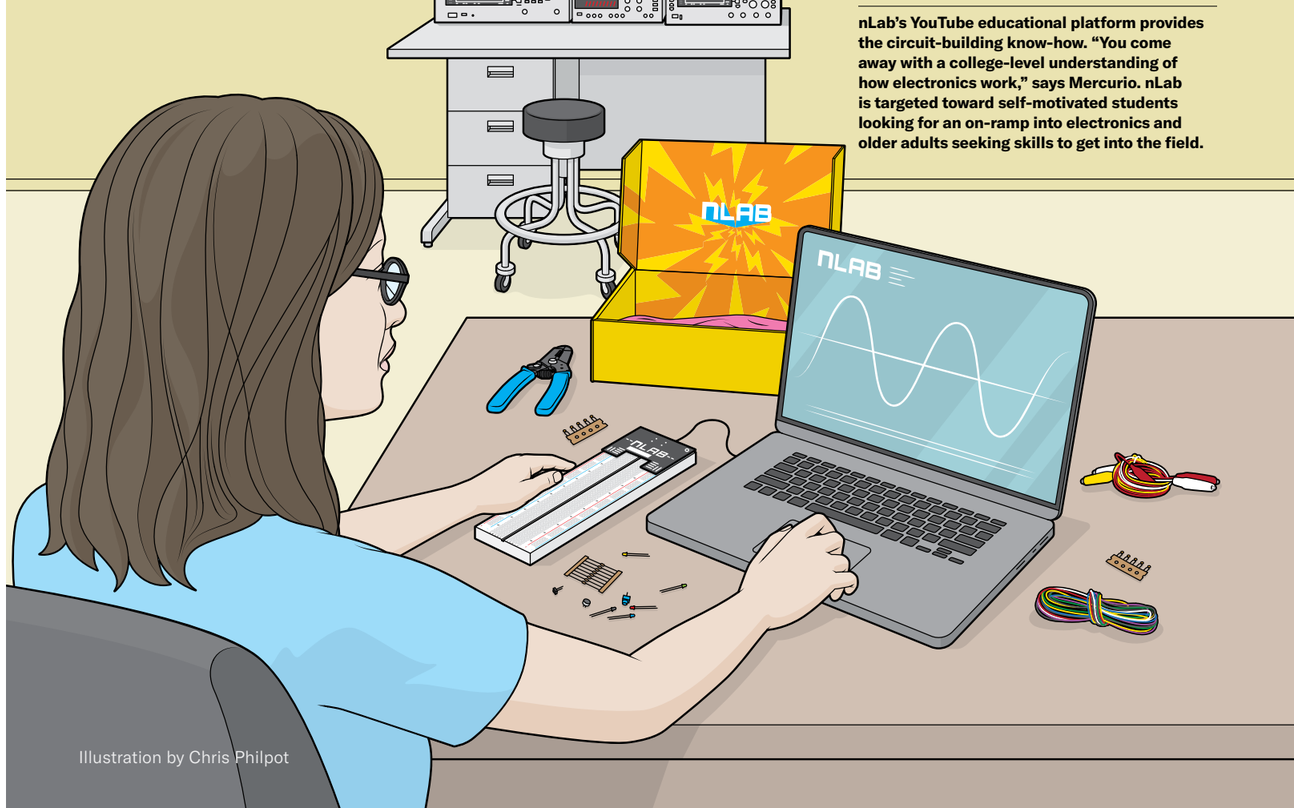



Illustration by Chris Philpot

← The Eloise W. Martin Reading Room reopened in October following renovations that included restored woodwork, furnishings and flooring.

MATTHEW GILSON

FACILITIES

# A New Era for a Campus Icon

Recently completed renovations to Deering Library renew the landmark's longtime status as a destination for students.

With its stately limestone exterior, towering stained-glass windows, vaulted ceilings and intricate carvings, the Charles Deering Memorial Library has graced Northwestern's Evanston campus for nearly a century.

Last fall — following a 16-month closure for major renovations — Deering Library reopened to students, faculty and visitors. The building may look the same on the outside, but a new era has begun after aesthetic and functional updates to the library's interior.

"The Northwestern University Libraries, including Deering, are a dynamic nexus that fosters learning, research and creativity," says Xuemao Wang, dean of Libraries and the Charles Deering McCormick University Librarian. "As we look to the future, one of our top priorities is ensuring that our facilities and services align with the University's evolving needs. The renovation of Deering Library helps us accomplish this goal beautifully."

The improvements, designed by HBRA Architects, preserve Deering Library's original architecture while increasing accessibility for visitors and enhancing spaces for study, collaboration and engagement with library resources.

The renovation focused on three spaces: the Eloise W. Martin Reading Room, the Richard C. Devereaux Foundation Reading Room (formerly the Music Listening Center) and the third-floor lobby. These spaces now feature restored woodwork, furnishings and flooring as well as retrofitted historic lighting, technology upgrades and new furniture.

The light-filled Martin Reading Room, which has long been a popular area for quiet study, can now seat 176 people — 40 more than before. Interior bookshelves have been removed to create space for additional study tables, chairs and comfortable lounge seating. New wiring and electrical outlets have been installed, so visitors can charge their devices more conveniently too.

Meanwhile, Deering's transformed third-floor lobby now houses the Sandi Lynn Riggs Gallery, which will showcase Northwestern's archival and special collections. Artificial overhead lighting that mimics sunlight without causing ultraviolet light damage to rare books and manuscripts makes it possible to put more library materials on display.

The Devereaux Room has been reconfigured to serve as both a reading room and a technology-enabled event space that can accommodate up to 150 people. Flexible furniture will allow the room to be used for open study, large-group meetings, public lectures and other special events.

The renovations embrace the library's historic design by architect James Gamble Rogers, who modeled the building after King's College Chapel in Cambridge, England, in the collegiate Gothic style. With capacity for 500,000 volumes, Deering Library met an urgent need for library storage when it first opened in 1933. Its traditional architecture and ornate decoration — from stained-glass windows depicting President Abraham Lincoln and Shawnee chief Tecumseh to busts of poet William Shakespeare and philosopher Jean-Jacques Rousseau — were meant to inspire all who entered.

The building was named to honor Charles Deering, a philanthropist and agricultural equipment magnate whose bequest underwrote the original construction. Today Charles Deering's great-grandson, Stephen M. Strachan, chairs the Northwestern University Libraries Board of Governors.

"For more than 90 years, Deering Library has inspired learning and discovery at Northwestern," Strachan says. "I'm proud of my family's legacy of support for this institution and thrilled with the renovation, which equips the library to thrive as a hub for intellectual and community engagement for many years to come."

The renovation project was funded entirely by donor gifts, including lead contributions from the late Leslie Cameron Devereaux '64; Steve '69, '70 MBA and Rosemary Mack; Nancy McCormick and Ray Rasco; Dee '82 and Colin McKechnie '83 MBA; Peter '60 and Joan McKee; Sandi Lynn Riggs '65; Stephen M. Strachan; the Xu family; and other members of the Libraries Board of Governors.

↓ The Richard C. Devereaux Foundation Reading Room serves as both a reading room and a technology-enabled event space that can accommodate up to 150 people.

MATTHEW GILSON

TECHNOLOGY

# Advancing Glaucoma Treatment With AI

The Center for Engineering in Vision and Ophthalmology is developing personalized imaging tools to revolutionize eye care.

Artificial intelligence is changing the way people in every field work, including ophthalmology. Launched in 2024, Northwestern's Center for Engineering in Vision and Ophthalmology (CEVO) is using AI and other cutting-edge technology to advance its glaucoma research.

Backed by a gift from the Forsythe Family Foundation, CEVO is developing innovative imaging tools to better understand and treat glaucoma, one of the world's leading causes of permanent blindness.

"The integration of engineering and AI is key to the future of medical diagnostics and interventions," says Hao F. Zhang, co-director of CEVO and a professor of biomedical engineering at the McCormick School of Engineering. "The foundation's support will bring the latest and most powerful AI hardware to CEVO to help us develop, train and apply new AI models and agents to achieve, for example, imaging-guided personalized surgeries."

Glaucoma is a group of eye diseases that cause damage to the optic nerve. Under healthy circumstances, fluid in the eye called aqueous humor drains through a network of sophisticated tiny channels. When these pathways become blocked or don't work properly, fluid builds up and intraocular pressure increases. Over time, this elevated pressure can lead to vision loss.

Current treatments include medication, which can become less effective over time. Minimally invasive glaucoma surgery, which lowers intraocular pressure by placing a stent along the drainage pathway, can be effective but has had limited overall success.

CEVO engineers are building new high-resolution imaging devices that capture the fine details of how fluid drains from the eye. These images, taken at a resolution of approximately 1 micrometer, are used to generate a digital twin of each patient's eye.

Such high-resolution, AI-integrated imagery could enable more effective treatments for glaucoma by providing personalized information about each patient's eye structure and function, allowing for tailored surgical planning. Instead of placing stents in the easiest insertion area, a surgeon could view a 3D digital model of the patient's eye before surgery and know exactly where to place the implant for maximum efficacy.

Nicholas J. Volpe, the George W. and Edwina S. Tarry Professor of Ophthalmology and chair of the department of ophthalmology at Northwestern's Feinberg School of Medicine, co-directs CEVO with Zhang. Cheng Sun, a professor of mechanical engineering, and Mark Johnson, a professor of biomedical engineering, are also contributing to the research.

"One of Northwestern's great strengths is the expertise it has in both engineering and ophthalmology," Volpe says. "This gift from the Forsythe Foundation is perfectly timed to accelerate our discoveries, which will undoubtedly lead to better treatment for our patients."

← **Engineers at CEVO are developing AI-integrated imaging tools to better understand and treat glaucoma.**

PEOPLEIMAGES





↑ **The Litowitz Center will provide students with the skills to navigate opposing viewpoints.**

MATTHEW GILSON

ENGAGEMENT

# Changing the Conversation

The Litowitz Center for Enlightened Disagreement aims to reshape how people communicate on and off campus.

In an increasingly polarized world, it can be challenging to engage with people who hold opposing viewpoints. A gift from Northwestern Trustee Jennifer Leischner Litowitz '91 and Alec Litowitz in support of the Center for Enlightened Disagreement will accelerate the University's impact on promoting constructive dialogue. In recognition of the Litowitzes' generosity, the University has renamed the center in their honor.

The Litowitz Center for Enlightened Disagreement will make enlightened disagreement a fully integrated part of student life, with the potential to reach thousands of Northwestern students across schools and majors. It will provide students, community members and organizations with the analytical tools and skills to navigate opposing viewpoints and harness the power of difference.

"Exchanging conflicting opinions freely and openly can fuel innovation and change, force us to think critically, and push us to expand our worldview," Jennifer Litowitz says. "Alec and I are thrilled that Northwestern is taking the lead in developing evidence-backed methods to teach students how to build understanding that will not only benefit them while at Northwestern but even more so when they transition into the broader world."

Originally launched as part of the Kellogg School of Management, the Litowitz Center is based on four interconnected pillars: research, curriculum, outreach and conversation. The center is led by Kellogg faculty members Nour Kteily and Eli Finkel '97. Kteily is the Kellogg Chair in Enlightened Disagreement, and Finkel is also a professor of psychology in the Weinberg College of Arts and Sciences. Both have extensive experience working to better understand polarization, misperceptions among opposing groups and potential methods to remedy these challenges.

The Litowitz Center will infuse research principles of logical thinking and enlightened disagreement into the learning goals of the Weinberg College Seminar, a required course taken annually by more than 1,000 first-year students. Through a partnership with the Division of Student Affairs, the Litowitz Center also will offer an innovative cocurricular program for students living on campus. A pilot, which began in fall 2025, includes sessions on cultivating open-mindedness, identifying one's own cognitive biases and working collaboratively with others who have different views.

"If we truly want to have meaningful dialogue and navigate across difference, we need to start with a better understanding of ourselves before we can try to understand others," Alec Litowitz says. "The intent of the center is to teach this type of critical thinking to create a foundation of understanding for constructive discussion and debate. The result may not be agreement but something equally valuable: enlightened disagreement."

# PHARMA OF THE FUTURE

## A DRUG FACTORY UNDER THE SKIN

**Scientists are developing an implantable device to produce and dispense medicine on demand — from within the body.**

BY CAROLYN WILKE

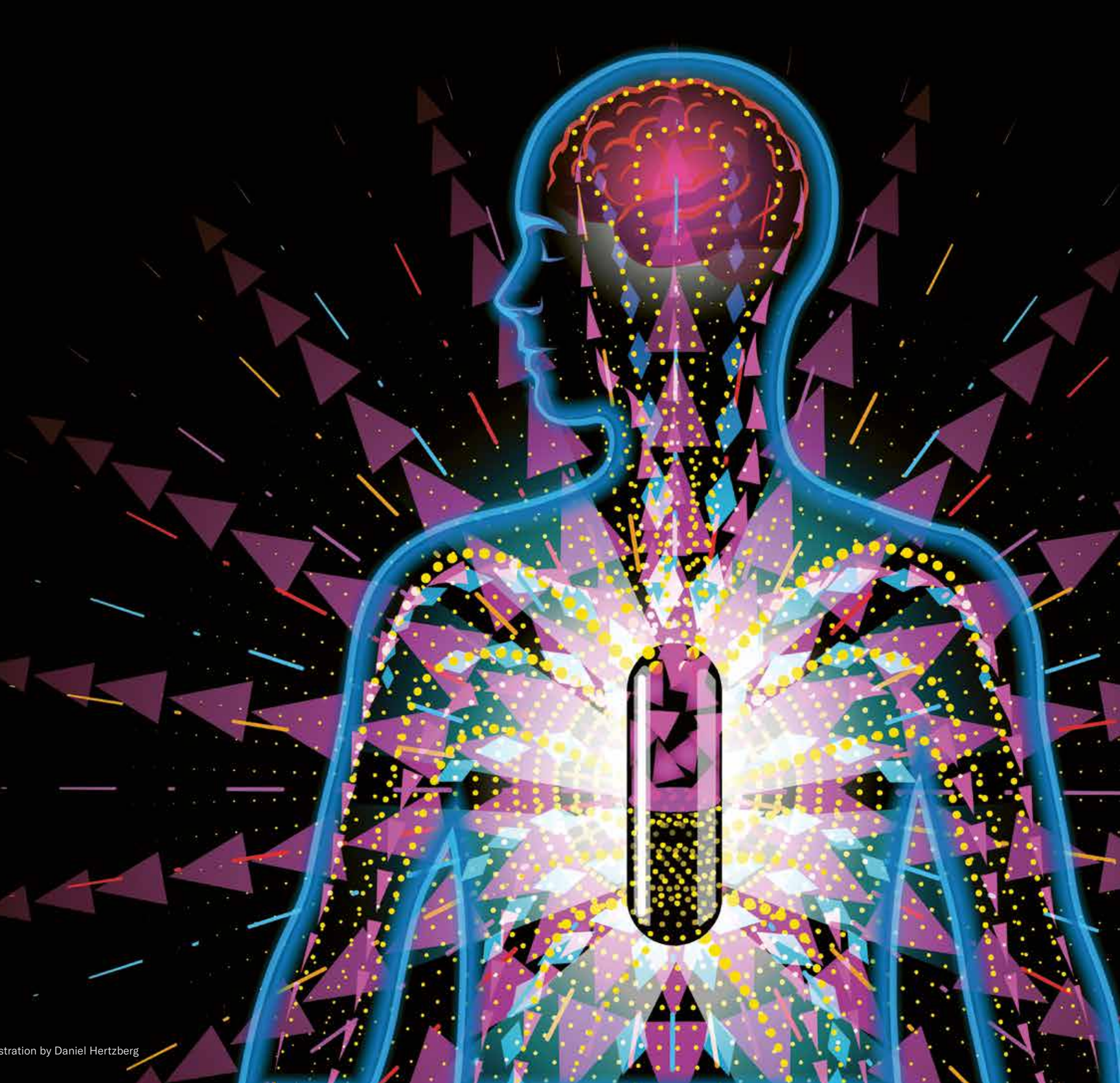


Illustration by Daniel Hertzberg

Every day, people reach for medications to control blood pressure, manage fertility or help them fall asleep. Many inject themselves with pharmaceuticals to manage pain or control food cravings, and some regularly visit clinics to receive infusions to treat cancer or autoimmune conditions.

But failure to take medications as directed has dire consequences. An estimated 125,000 people in the U.S. die each year due to nonadherence to prescribed treatment, which also results in roughly $100 billion annually in preventable health care costs.

Northwestern professor Jonathan Rivnay is working toward a solution. He and colleagues at the University and partner institutions have created an implantable pharmaceutical factory that "lives" inside a person's body. Unlike most existing biomedical implants, this one teems with life — full of cells engineered to manufacture drugs that treat disease or provide cues to help the body heal. With these living pharmacies — biohybrid devices that combine synthetic biology with bioelectronics — Rivnay hopes to regulate the production of drugs inside a patient and ultimately improve health outcomes.

Controlled-release implants and skin patches loaded with medicines already exist. But most commercial products don't allow for dynamic control of dosing, says Rivnay, the Jerome B. Cohen Professor in Engineering. By comparison, the new implant is engineered for remote control, allowing doses to be tailored to the individual and adjusted over time.

Cells are masterful molecule makers that can precisely manufacture compounds, such as hormones and enzymes. And synthetic biology — the practice of engineering a cell's genetic material to create new functions or modify existing ones — has made it increasingly possible to reprogram human cells to produce those compounds. Meanwhile, advances in bioelectronics have made it feasible to exercise electrical control over physiological function. By combining biology, electronics and materials engineering, Rivnay and his team are building devices to manage the complexity of a living cellular system while simplifying the production and delivery of medications.

"It could be a whole new paradigm in how we deliver medicine in a personalized manner," says Rivnay, a faculty member in biomedical engineering, materials science and engineering in the McCormick School of Engineering.

Rivnay and his colleagues have designed several biohybrid devices — ranging in dimension from a square gadget the size of a smartwatch face to a lip balm–sized tube — to deliver therapies for cancer, diabetes and obesity. And they've engineered a prototype that dispenses hormones to control the body's sleep-wake cycle. Creating these wireless, living, cell-based implants requires an array of expertise. As it happens, Rivnay is an expert not only in bioelectronics but also in building teams to tackle lofty goals.

Rivnay and his colleagues have designed several biohybrid devices to deliver therapies for cancer, diabetes and obesity. And they've engineered a prototype that dispenses chemicals to control the body's sleep-wake cycle.

Rivnay's enthusiasm for materials research began during his undergrad days at Cornell University, where he majored in materials science and engineering and worked with materials scientist George Malliaras to make organic light-emitting diodes (OLEDs). Today we take OLED displays on smartphones for granted, Rivnay says. But in the early 2000s, this research exposed him to a rapidly expanding field.

While in graduate school at Stanford University, Rivnay studied semiconducting polymers; these materials were initially used in solar cells and quickly gained traction for biological applications, he says. In addition to mimicking the soft, squishy feel of body tissues, these materials can also conduct electricity, not only with electrons hopping along the polymer chains but also with the movement of ions. They're "speaking the same language as biology," Rivnay says.

In 2012 Rivnay reunited with Malliaras, this time in the department of bioelectronics at the École Nationale Supérieure des Mines de Saint-Étienne in France, and joined a wave of researchers who were using organic electronics for biological applications. As a postdoctoral fellow, Rivnay worked on devices that can map the brain's responses to events by amplifying subtle signals from firing neurons. He also developed devices to stimulate the brain, which could potentially help treat diseases such as epilepsy that are caused by surges of electrical activity in the brain. It was his first experience on a team of biologists and engineers working side by side.

Rivnay landed at Northwestern in 2017 and has since built a team of 20 that includes research assistant professors, grad students, undergrads, postdocs and a research technician. His work has connected him to experts in other fields across the University too.

"Collaboration across domains, working with clinicians, being able to build teams for larger projects — that's in the DNA of Northwestern," he says.

In April 2020, when schools and businesses went remote, Rivnay holed up in his bedroom's walk-in closet for Zoom calls with collaborators. His two sons — 1 and 4 at the time — would frequently knock on the door, looking for a playmate. Rivnay and his sons spent their evenings "doing art" — the boys painting with watercolors while Rivnay sketched out ideas for a device.

He and his colleagues had seen a call for proposals from the Defense Advanced Research Projects Agency (DARPA) for a means to help the body adjust its internal clock to a new time zone. This could be useful for traveling military personnel or shift workers adjusting to a night schedule. With no in-person meetings or lab work to draw them away, Rivnay and other researchers got to thinking about a solution.

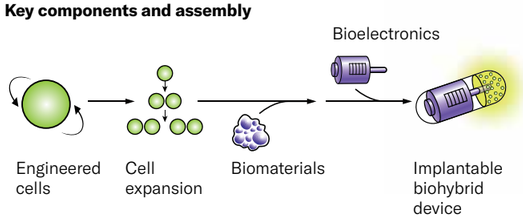
The team hypothesized that using a type of cell therapy — in which engineered human cells are placed in the body to treat disease — could produce chemicals that control circadian rhythms. It's a method that's been effective in treating other conditions. One currently available cell therapy, for example, uses modified blood cells to treat sickle cell anemia. Others use immune cells to treat cancer. These cell therapies require extracting a patient's cells, modifying them and infusing them back into the body. Others, such as a newly approved cell therapy for macular degeneration, rely on implants of exogenous cells — that is, cells not from that patient.

But it can be a challenge to keep implanted cells alive. Without access to oxygen from blood vessels, cells can quickly die. Rivnay's team tackled this in 2023 when, alongside collaborators

### How the Living Pharmacy Works

Jonathan Rivnay's implantable biohybrid device is full of cells engineered to manufacture drugs that treat disease or help the body heal. These living pharmacies combine synthetic biology with bioelectronics and can be engineered for remote control, allowing doses to be personalized and adjusted over time.

**Key components and assembly**




**Regulation and communication**

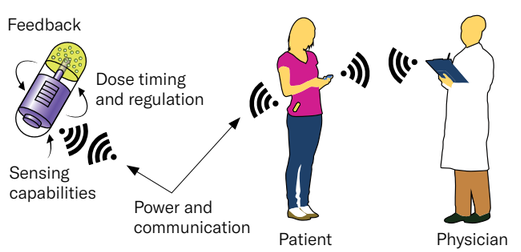



ILLUSTRATION AND INFOGRAPHIC: DANIEL HERTZBERG

## Building Biohybrid Bridges to Repair Nerves

*Devices that blend biological and human-made materials could help make tricky fixes in severed nerves possible.*

**After a person suffers a severe injury, such as from a car crash or gunshot, surgeons may need to reconnect nerves to restore motion and feeling to damaged limbs. When the nerve injury is severe, these repairs sometimes require taking a nerve segment from elsewhere in the body. But options are limited because this approach restores one function at the expense of losing another. Using a segment from a cadaver is another option, but the patient's body might reject the foreign material.**

**So researchers are exploring using synthetic materials to bridge nerves. "But they have a big problem," says Colin Franz '17 GME, '18 GME, a physician-scientist at the Shirley Ryan AbilityLab. "Currently, you can only bridge pretty short distances with those materials."**

**This area of research has seen only limited advances in the past few decades. Biohybrid devices could provide a solution. Franz and Jonathan Rivnay teamed up to create biohybrids that could accelerate the bridging of nerves. Biohybrids bring together the best features of synthetic and biological nerve grafts while also enabling add-on therapies like targeted electrical stimulation. The biohybrid nerve grafts boost recovery and deliver therapy in the form of electrical pulses that stimulate nerve growth.**

**Clinical trials have shown that electrical signals improve the connection of nerve to muscle and speed the healing process, says Franz, who is an associate professor of physical medicine and rehabilitation and neurology. There are other ways to speed nerve growth, for instance by growing Schwann cells (a type of supportive cell) near nerves. With those cells added to a biohybrid, "you get a massive increase in growth," Franz says.**

**These new tools might help restore motion to patients who otherwise would not recover it, he says.**

**← Check out our video interview with Jonathan Rivnay to learn more about his implantable biohybrid devices.**

from Carnegie Mellon University (CMU), they succeeded in producing oxygen near the cells by using electricity to split water molecules. They then created an oxygenator-equipped device that could keep around 80% of the cells packed into a chamber alive for four weeks. By outfitting their devices with an oxygenator, they found that cells stayed alive at very high densities — more than tenfold what they saw in typical cell therapies, Rivnay says.

A later proof-of-concept device delivered leptin, a molecule that's associated with hunger and plays a role in regulating certain circadian rhythms. Rivnay and colleagues continue to work on this project while applying what they've learned to new initiatives to treat ovarian cancer, diabetes and obesity. A more recent oxygenator prototype kept cells alive for more than two months.

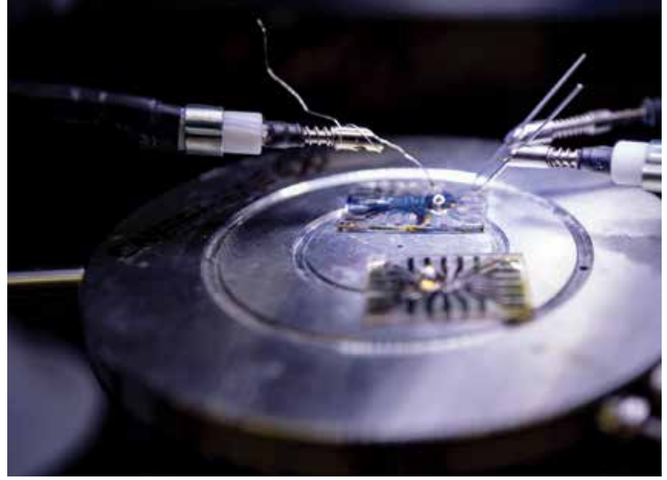
To control the cells' activity — how and when they produce molecules — the team tapped synthetic biologists at Northwestern and other universities. Synthetic biology co-opts natural life processes for other useful purposes. Applying synthetic biology "to mammalian cells went from hypothetical to sort of everyday in the past five years," says Joshua Leonard, a Northwestern professor of chemical and biological engineering and one of Rivnay's collaborators. Leonard's group came up with some of the field's key techniques and approaches for engineering mammalian cells, including human cells. Synthetic biology enables researchers to improve upon traditional cell therapy, specifically by allowing them to control the dosing on an ongoing basis.

Rivnay's collaborators at Rice University have engineered human cells that respond to external cues, such as light from an LED. Rivnay's team has incorporated this discovery into the living pharmacy device. The light cues the cells to initiate drug production, and the light's intensity or duration relays the message of how much of the drug to make. Powering lights, however, means including a battery that takes up half the device's volume. So the team, with input from Leonard's lab, instead used electrical signals to activate the cells.

Shrinking the device to take up less space in the body is another priority for the researchers. In October 2024 Rivnay teamed up with collaborators on a $34 million award from the Advanced Research Projects Agency for Health to develop a minimally invasive pharmaceutical implant that dispenses treatments for diabetes and obesity. The researchers aim to make their device pill-sized, a few millimeters in diameter, and hope to implement wireless power transfer.

Guillermo Ameer, the Daniel Hale Williams Professor of Biomedical Engineering at McCormick and professor of surgery in the Feinberg School of Medicine, says Rivnay's technology is "visionary." A method to program cells, activate them and protect them while they're in the body could be useful far beyond administering drugs. Ameer, one of Rivnay's collaborators, says

ILLUSTRATION: HENRY MCGILL



The light cues the cells to initiate drug production, and the light's intensity or duration relays the message of how much of the drug to make.

such devices may help the body restore tissues or prevent their deterioration. (See "Building Biohybrid Bridges to Repair Nerves," opposite page.)

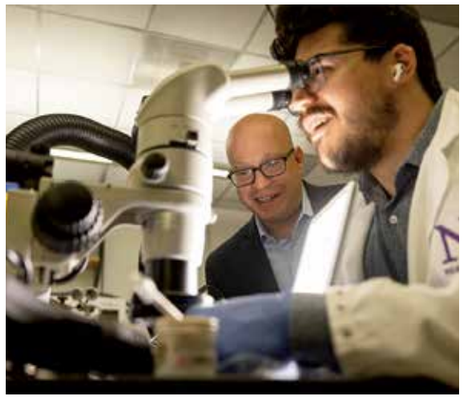
Some ligament tears, for example, are treated by attaching tissue taken from elsewhere in the body, "which is destroying one part of your body to fix the other part," says Ameer, director of the Querrey Simpson Institute for Regenerative Engineering. A regenerative engineering approach would instead seek to grow new tissue. A surgeon could implant scaffold materials, on which to grow new tissue, along with a biohybrid device that dispenses molecules that spur tissue growth and prevent the development of scar tissue, he says. Ameer, Rivnay and their colleagues recently secured a $4.7 million grant to develop a device to monitor wounds, quicken their healing and lower infection risk.

sensing capabilities to the biohybrids. That would allow them to operate somewhat autonomously by detecting conditions in the body related to a previously diagnosed disease and administering the appropriate treatment. Rivnay is working with Northwestern chemist and biomedical engineer Shana O. Kelley as well as collaborators at Rice, Georgia Tech and CMU to design a biohybrid device that can sense markers associated with ovarian cancer and then deliver the appropriate therapy.

Rivnay's goal is for biohybrid implants to make it to the clinic. He and colleagues are engaging with the U.S. Food and Drug Administration (FDA) for feedback regarding a clinical trial of their implant to treat ovarian cancer. The device produces an FDA-approved treatment that is usually given through infusions. The researchers recently tested it in a large animal model. The device produced the biologic drug for more than 60 days.

"This is our first effort to not only translate some of this technology [to practical application] but also move this toward helping treat patients," Rivnay says. "We have a huge opportunity with these biohybrids. These types of products just don't exist."

*Carolyn Wilke '18 PhD is a Chicago-based freelance science writer and editor. She is an adjunct lecturer in the Medill School of Journalism, Media, Integrated Marketing Communications.*



SHANE COLLINS

**↑ Jonathan Rivnay observes as researcher Juan Villacres Perez inspects electronics for a biohybrid device.**

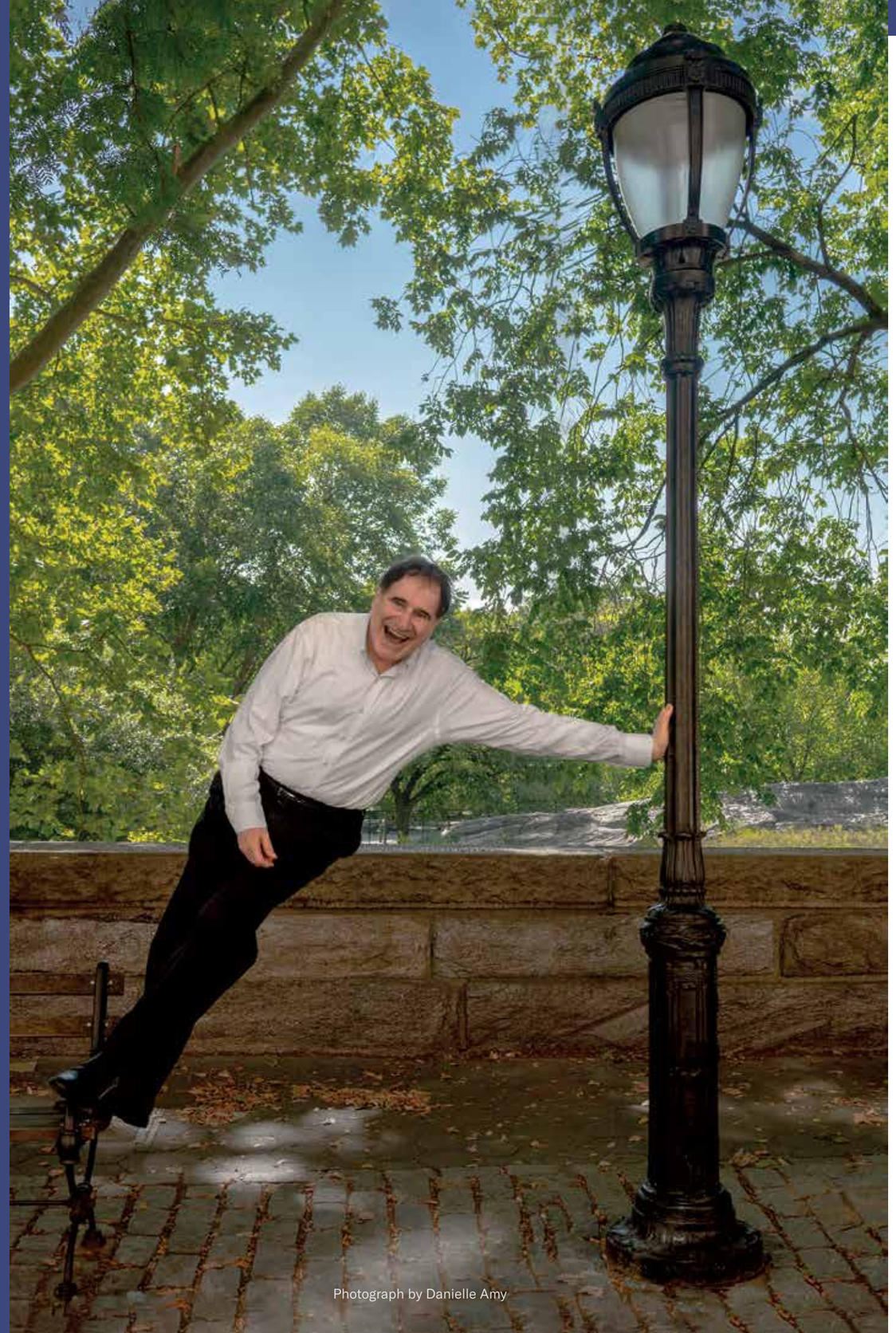
**→ Rivnay holds his team's first-of-its-kind biohybrid device that combines cell therapeutics and bioelectronics. The device is being developed to treat ovarian cancer.**

**Top of page, researchers in Rivnay's lab use a testing rig to measure the performance and function of sensors and transistors in bioelectronic devices.**

# ONE OF A KIND

**Richard Kind leaned into his playful everyman persona at Northwestern — and never looked back.**

BY BRENNA EHRLICH ENOS



Photograph by Danielle Amy

Richard Kind is cruising to his summer spot on the Jersey Shore in his ancient Honda Odyssey when he interrupts our phone interview to make a very important call.

He calls back a few minutes later. "Want to know why I had to get off the phone?" he asks in his distinctive voice — perpetually stressed out with a dash of barely suppressed mirth. "Because I have E-ZPass."

Kind '78 had driven through a tollbooth and received an urgent message to call the service center — and suddenly we've launched into what could be a bit from *Curb Your Enthusiasm*, a comedy series in which Kind played creator Larry David's loudmouthed and socially oblivious cousin Andy for nearly two decades.

To be clear, Kind isn't the type of actor to hire someone to manage the minutiae of everyday life — such as keeping one's E-ZPass account in good standing. He's also not the type of actor to hire a driver ... or even drive a new(er) car. His Honda Odyssey is pocked with dings and bumps that resemble "a 15-year-old pubescent's face," he says. "It will never get stolen because nobody wants this car."

Maybe that's all because he wasn't supposed to be an actor at all. Ever since Kind was a baby in Bucks County, Pa. — a baby who looked remarkably like his future 69-year-old self — his path was laid out for him: "I was supposed to go to law school and business school" and then straight into the family business, he says. "I went to Northwestern to take over the jewelry store [LaVake Jewelers in Princeton, N.J.] from my dad."

↑ Baby Kind

But Kind secretly dreamed of being an actor, and his tenure as a Northwestern student upended the family business succession plan. With support from professors who recognized his talent for acting and wouldn't let him give up on his dreams, Kind strayed from his predetermined post behind the jewelry counter, landing instead in the world of entertainment.

"Theater was not something you did," Kind says, recalling his upbringing. "You could dream about it, but you didn't actually do it. You had a regular life. … I was always a good kid, but my biggest rebellion was not working at my dad's store."

## "Maybe you'll be successful. Maybe you won't."

**— Frank Galati**

Kind is definitely "that guy" — the hilarious, easily recognizable, rubber-faced actor who pops up on your favorite sitcom or movie, often playing brash and unorthodox characters. He was the overly dramatic doctor Mark Devanow on *Mad About You*, the eye-patch–wearing Vince Fish in *Only Murders in the Building* and the unwelcome houseguest Arthur Gopnik in the Coen brothers film *A Serious Man*. He starred as American architect Addison Mizner in the Stephen Sondheim musical *Bounce* (now called *Road Show*) and voiced Bing Bong in Pixar Animation Studios' classic *Inside Out*. His extensive list of acting and voiceover credits on IMDb includes varied and wide-ranging roles.

Despite his quirky vibe, however, Kind is also an everyman — a persona he perhaps developed at Northwestern, where the social butterfly mixed and mingled with everyone from theater kids to frat boys. On screen or stage today, it seems easy for him to slide into any character's skin, imbuing each role with a deep level of humanity that can't be taught, even by the best acting coach.

At Northwestern he studied everything — and, more importantly, every*one*. He recalls walking back to Shepard Hall, his first-year dorm, after class: "I would stop at every person's room just to chitchat and check in. It took me 40 minutes to get to my room, and then we would stay up at night and talk.

"College is not just about academic learning," he adds. "It's about taking off your blinders and seeing the whole world of people who come from different places. It's not just about the books. In college, you learn how to learn about people."

In a letter to his grandmother — written with immaculate penmanship — Kind gushed about a class on UFOs and groused about the dining hall food.

He recalls wandering the tree-lined paths and absorbing knowledge from his communication studies classes with the same level of curiosity that he brought to his friendships. "I just loved being at Northwestern," Kind says. "I loved school. I loved learning. I loved my friends. I loved parties."

His study of human behavior — both in and out of the classroom — paid off. As a first year, he scored a prized role in an off-campus University Theatre production of the 1966 musical *The Apple Tree* (with lyrics by the late Sheldon Harnick '49, '18 H). The following year, he played the villainous Thomas Danforth in the University Theatre production of Arthur Miller's *The Crucible* at Cahn Auditorium. (Kind also performed in Waa-Mu, though he's still "disgruntled" he was never cast in The Mee-Ow Show.)

"I think he has this great quality — the understanding of what it's like to be a normal person, the frustrations of it," says Irving Rein, one of Kind's favorite instructors. "I think Northwestern was really important in that."

Kind raves about his School of Communication professors, including Rein, David Zarefsky '68, '69 MA/MS, '74 PhD and the late Frank Galati '65, '67 MA/MS, '71 PhD, who encouraged him to pursue an acting career. (His Sigma Alpha Epsilon fraternity brothers, meanwhile, kept him grounded, dishing out healthy doses of humble pie.)

But when Kind expressed doubts about his future as an actor, the director of *The Crucible* "sat me on the stage and berated me that I was quitting the theater," Kind says.


Richard Kind celebrates his new-alum status at Northwestern's John Evans Alumni Center during Commencement weekend in June 1978.

PAGE 29 AND 30: COURTESY OF UNIVERSITY ARCHIVES


After acting in New York City for four years, Richard Kind returned to Chicago in the early 1980s to join the Practical Theatre Company.

THE PRACTICAL THEATRE COMPANY: COURTESY OF UNIVERSITY ARCHIVES; PORTRAIT AND *CATCH 27*: THE SECOND CITY

Galati also pressed him to take the plunge. "He said, 'Go try it. Maybe you'll be successful. Maybe you won't,'" Kind recalls. And in a prescient moment, Galati told him, "'You're not a leading man, but when you're about 33 or 34, you're going to come into your own.'"

Importantly, Galati taught Kind to go all in.

During one oral interpretation course, a classmate performed a scene from *A Streetcar Named Desire*. "She was very mousy," Kind says. "And Frank tells her, 'Listen. Your parents are paying a lot of money to let you act. We're giving you a chance to not only do what you want to do but what you believe God put you on this earth to do. So give it to us!'

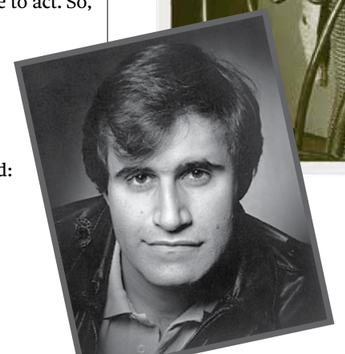
"That's when I learned to like auditioning," Kind adds, "because you go into a room and you get to do what you do best — not to get a job, not to impress these people — to get a chance to act. So, give it your all!"

After college, Kind's career unfolded much as Galati foretold: Kind moved to New York City for four years, appearing in "off-off-Broadway shows" and getting his Actors' Equity Association card. Then it was back to Chicago, where he joined Paul Barrosse '80, Brad Hall '80, Gary Kroeger '81 and Julia Louis-Dreyfus '83, '07 H doing comedy revues as part of the Practical Theatre Company. The 1983 production *Mega Fun* caught the eye of Second City co-founder Bernard Sahlins, who recruited Kind for the main stage — despite Kind's lack of improv experience.

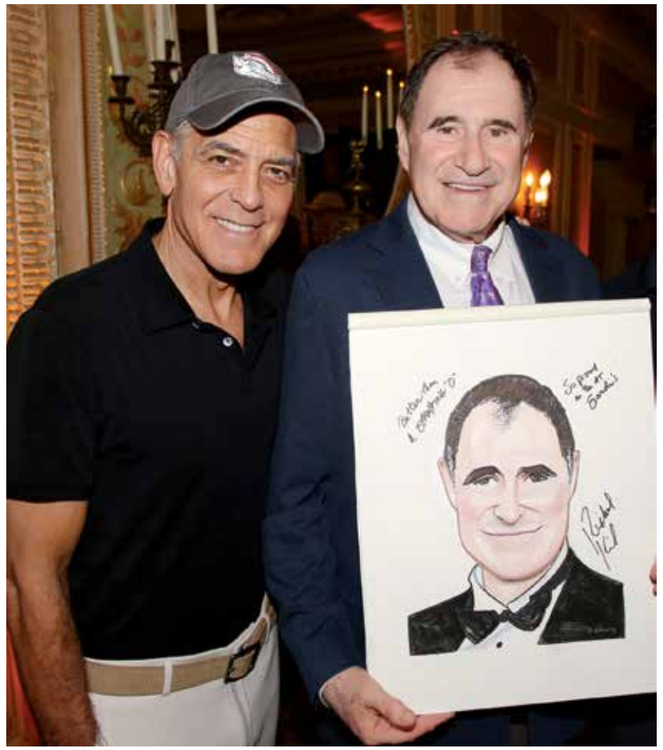
"People call Second City the Harvard of comedy, but it's really a great acting school, because you are onstage every single night," Kind says. "I was smarter there because I had to be up to date on the news of the day. I had to be at my most literate."

For 4½ years, Kind honed his comedy and improv chops on that legendary stage, playing everything from a snooty waiter to an irate prospective father-in-law. He also did summer stints in Atlantic City, N.J., where the Second City cast put on 12 shows per week in between crashing at a local hotel and frequenting a 24-hour bar.

When it came time to go to Hollywood, though, Kind was terrified. "I was nobody,"



Left, Richard Kind's Second City headshot from 1983. Above, from left, Maureen Kelly, Kind and Dan Castellaneta in Second City's 1986 main-stage revue *Catch 27*.



George Clooney, left, and Richard Kind pose at a portrait ceremony honoring Kind at Sardi's restaurant in New York City on June 6, 2025.

he says. "I was a big fish leaving a small pond." As luck would have it, he was cast in a pilot, *The Bennett Brothers*, alongside George Clooney. The pilot failed — but Clooney became a lifelong friend. He was Kind's best man at his 1999 wedding.

"George introduced me to his community, who have remained my good friends all these years," Kind says. "He was a savior for me."

Kind didn't become a mammoth star à la Clooney, but he got consistent work, appearing on Carol Burnett's variety show and big '90s sitcoms like *Mad About You* and *Spin City*. "A journeyman actor just keeps working," Kind says. "You don't have big breaks — you just have milestones."

For all his TV and film credits, though, Kind most enjoys the thrill of live theater. "I like doing musicals that are really hard," he says. "I really like being onstage for a drama or a musical for that concentrated hour and a half, two hours where you have to be on the line for that moment, versus doing movies or TV where it's not as concentrated."

He's had his share of stage time. Kind earned a Tony nomination in 2013 for his role as Marcus Hoff in *The Big Knife*. He played Ira in the Broadway production of Charles Busch's play *The Tale of the Allergist's Wife* in the early 2000s. Busch '76 then cast Kind as a Nazi in a 2007 production of his slapstick play *The Lady in Question*. Kind also played Max Bialystock in the Broadway and Hollywood Bowl productions of *The Producers*.

"He really is a throwback to the great comic players," Busch says of Kind. "There's a lovable madness to him."

Brian d'Arcy James '90, Kind's co-star in a Broadway production of *Dirty Rotten Scoundrels*, attributes Kind's stage success to his "fierce respect for the craft of what it takes to be in theater," an attribute nurtured at Northwestern. "It's not lightning in a bottle," says James, who appeared with Kind at the School of Communication's 2018 star-studded gala, *A Starry Night*.

"Some people are really good-looking and get thrust into a career, and they're not as good as they should be because they haven't been given the opportunity to work as hard or to fail," Kind says. "I got practical training at Northwestern."

Despite his success, Kind insists that the theme of his life story ought to be "how not to be a star." And he likes it that way. (In fact, in early 2025 Kind performed his live stage show *How Not to Be Famous: A Conversation With Richard Kind* in select U.S. cities.)

"When a big star gets hired for a project, there is so much pressure on that person to hold the production together," he says. "I walk on the set and I go, 'Where do you want me? What do I do?' And then I go home. Nobody counts on me. It's very easy. I just do me."

Kind says he has one role left on his bucket list: attorney Roy Cohn in Tony Kushner's two-part play *Angels in America*. But ultimately, he's happy to have a reliable, sustained career as an actor, taking on whatever role is thrown at him.

"Whenever I get a part," he says, "I always go, 'Oh, this is the best part. I'm so glad I get to play it.'"

In other words, Kind is living the dream. "People ask, 'Hey, are you still doing TV?' I mean, I've been on 8,000 programs in the last year. I go, 'Just sit on your couch and watch. I'll be there!'"

*Brenna Ehrlich Enos '07, '08 MS is chief research editor at* Rolling Stone*, where she also writes about music, entertainment and true crime. She lives in Hackensack, N.J.*

**Check out our video interview with the one and only Richard Kind.**

KIND AND CLOONEY: BRUCE GLIKAS/WIREIMAGE



# Hey, I Know That Guy!

With an unforgettable face and a voice to match, Richard Kind is seemingly everywhere. Here are a few of his famous screen roles.

1: COURTESY OF NETFLIX; 2: COURTESY OF HULU; 3: COURTESY OF DISNEY/PIXAR; 4: JOHN JOHNSON/HBO

VINCE FISH

***ONLY MURDERS IN THE BUILDING***

**Joining fellow comedy legends Steve Martin and Martin Short in this modern whodunit, Kind dons an eye patch to play the quirky murder suspect Vince Fish, a role that was written specifically for him.**

ANDY DAVID

***CURB YOUR ENTHUSIASM***

**Larry David initially thought Kind was too famous to play his cousin on David's autobiographical show. "Assure him, I am not too famous," Kind told a mutual friend. Thankfully, David changed his mind.**

RICHARD KIND

***EVERYBODY'S LIVE WITH JOHN MULANEY***

**This is a role Kind was born to play: himself.**

BING BONG

***INSIDE OUT***

**Kind worked his way into the hearts of an entire generation as the voice of a cast-off imaginary friend who describes himself as "mostly cotton candy, but ... part cat, part elephant, part dolphin." Bing Bong could easily have been a truly annoying character. But Kind imbued him with a loving spirit and a purity that made the character's demise heartbreaking.**

PAUL LASSITER

***SPIN CITY***

**Kind is an absolute master at playing grating characters you just have to love. See city hall press secretary Lassiter, the foe of Deputy Mayor Mike Flaherty, played by Kind's real-life pal Michael J. Fox. From falling for pranks to losing his wife to the convent, Lassiter kept us laughing for six seasons.**

ARTHUR GOPNIK

***A SERIOUS MAN***

**In this retelling of the Bible's Book of Job, Kind plays a "shiftless leech" (per film critic Roger Ebert), a counter to the lovable losers he often portrays.**

**1** Kind hams it up on *Everybody's Live With John Mulaney*. He and Mulaney also co-starred in the Broadway play *All In*. **2** Kind's recurring character Vince Fish, who suffers from antibiotic-resistant pink eye, appears in Seasons 4 and 5 of *Only Murders in the Building*. **3** Kind voices the *Inside Out* protagonist's imaginary friend, Bing Bong. **4** Kind's Cousin Andy was a character many *Curb Your Enthusiasm* viewers loved to hate.

# America's New Gilded Age

Historian Margaret O'Mara discusses the evolving relationship between government and Big Tech — and what that means for the future of politics and innovation.

BY JEN KIRBY

**LAST SEPTEMBER, LEADERS OF THE TOP U.S. TECH FIRMS** gathered for a White House dinner. Those executives — who also happen to be some of the world's richest men — praised President Donald Trump and promised to invest in the United States, including millions for data center construction and outlays for operations and hiring. The scene was something of a sequel to Trump's inauguration earlier last year, where many of the same CEOs sat front and center at the swearing in. The conspicuous presence of tech giants signaled the industry's eagerness to align with the new administration — and to exert its influence on federal government policy.

Business and tech leaders have always tried to win favor with the White House, says Margaret Pugh O'Mara '92. But under Trump, this effort has become even more explicit. "They're making sure their companies are not on the wrong side of the Trump administration at a time when being on the wrong side … has really serious business consequences," O'Mara says.

O'Mara is the Scott and Dorothy Bullitt Chair of American History at the University of Washington. She studies the intersection of politics and technology, an area that first captured her interest as a history and English major at Northwestern. Her 2019 book, *The Code: Silicon Valley and the Remaking of America*, examined the push and pull between industry and government during the Cold War and how that gave rise to the modern Silicon Valley. Her research explores how the U.S. tech industry has intertwined itself with public policy, often in ways that contradict the Valley's self-mythologizing as a disruptive, free-market miracle.

That dissonance carries through to today, as tech titans rapidly advance their vision for the future of technology in areas such as artificial intelligence and cryptocurrency while deploying their astounding personal fortunes to advance their personal and ideological interests.

*Northwestern Magazine* spoke with O'Mara about how tech leaders' unprecedented influence is reshaping the United States and its body politic and what lessons from history can help us make sense of this current moment.

**Q. How does today's tech industry — and the power and extreme wealth of those who lead it — compare with previous eras in U.S. history?**
The closest comparison is the Gilded Age, which marked the rise of the 19th-century titans of railroads and steel and banking. Standard Oil's John Rockefeller was a billionaire. But when we compare his wealth to the fortunes of today and the global reach of these American companies, it really makes the Gilded Age seem quite small. We don't have a precedent for it.

Tech leaders hanging at the White House is not a new thing, but bringing in someone like Elon Musk to do this hypervisible Department of Government Efficiency enterprise during the first few months of the Trump administration is new. This hyperpartisan stance that some tech executives, Musk included, have taken is new. We have not had this explicit "I'm endorsing this person. I'm going to devote the social media platform I own to push this person and their politics."

Before, it was much more low-key. A lot of Silicon Valley people felt the government was the problem, not the solution, and the best they could do was keep it as far away as possible from their business.

**Q. What kind of influence have these tech giants been wielding in terms of government policy?**
AI is a great example. The tech executives who've been in Trump's favor have very successfully argued for what, at the moment, seems to be a regulatory environment that's designed and dictated by the AI companies themselves.

Unlike the dot-com boom or even the personal-computer boom, the rise of AI is a revolution that requires massive, massive amounts of capital — such as capital for data centers, for chips. AI companies need the government to be an investor in this.

That's why these individual leaders and investors are working so hard to get in Trump's good graces — so they will have a hand in what the future of AI will be. And sure enough, the government has promised investment for data infrastructure, such as lifting roadblocks to allow for more data center construction and energy use. It's a super pro-industry environment.

In the dot-com era, the government created the rules of the road. The internet was a piece of public infrastructure made available for commercial use. A lot happened behind the scenes politically with the development of the internet to create this platform for the free flow of information.

That's not what we're doing now with AI. At least on the federal level, this is being done in a largely unregulated environment.

**Q. The Trump administration has also taken an interventionist stance toward the tech industry. I'm thinking of the administration's deal with Nvidia to take a 15% share of its AI microchip sales to China in exchange for the required export licenses. How does that change the relationship between the tech industry and the U.S. government?**
We have this quintessentially American model of government engagement in private markets and private industries, particularly the tech industry. That can include the government getting out of the way — or creating incentives to help certain industries grow.

In my 25-plus years of studying this history, I've learned that it has been a loose relationship. The state played a huge role. But it wasn't breathing down the neck of entrepreneurs. It wasn't trying to take a cut. This gave room for enterprise and market competition to flourish.

The analogy I use is an old-fashioned sandbox, where the government is building the wooden frame and pouring the sand in, and kids go in and build sandcastles and throw sand at each other. They're allowed to create on their own terms but with resources provided by public policy.

But this profit grabbing — that's not something the government has done before. In innovation-driven industries, where companies are dependent on developing next-gen technologies and they're taking risks in developing those, if you have a government stakeholder that's putting rules and expectations in place, independent of market forces, there's no guarantee that you can keep that fantastic entrepreneurial energy going.

**Q. How has immigration helped fuel the American innovation economy?**
The American model over the past 80 years had internationalism as its foundational tenet. It was an understanding that science and the pursuit of knowledge could itself be soft diplomacy, and bringing foreign students and scholars to train in U.S. universities could be an effective form of soft power, particularly during the Cold War.

It has been richly proven that incentivizing incredibly bright people from all over the world to come to the U.S. to study and to start entrepreneurial enterprises has been a critical component — if not the secret ingredient — of why American tech has been so dominant.

Immigration has been this incredible engine. A great example is Sergey Brin, co-founder of Google, who is the child of Russian émigrés. Same with Andy Grove, a Hungarian refugee who was CEO of Intel from 1987 to 1998.

We can't predict what the future is going to bring. But American innovation rests on this very international foundation of people who've come here from around the world.

**Q. Tech companies — Meta, X, OpenAI — have tremendous sway over global political discourse, influencing how we communicate and what information we receive. How does that fit into the broader influence of Big Tech?**
We are in this uncharted territory when it comes to the dominance of an algorithmically manipulated news and information environment. These algorithms operate in a black box. But certainly it's been made clear that there has been a deliberate effort to engineer the algorithm to favor certain types of information that produce engagement. All the platforms are engineered to build outrage, because outrage brings eyeballs, and eyeballs sell ads. That does change the dynamic of what's getting covered and emphasized.

Here's the analogy I've used: It's a runaway train. These social media companies were spectacularly successful. The train started gathering speed, and the engineer at the helm, in this case, Meta's Mark Zuckerberg, didn't have the capacity or the will to slow it down. Also, the fast train was making lots of money. If you're a publicly traded company, you're not going to do things to hack into your profitability.

Perhaps we will reach a tipping point where the "enraged to engaged" social media model isn't working anymore and something has to give. I would imagine there's money to be made in creating a more sane and rational information environment that's rich in quality. I'm curious to see how today's college students, who have been navigating this from the very beginning, will attempt a reset. Will they navigate it better than previous generations?



O'MARA: JIM GARNER

**BIGNESS CREATES BACKLASH.** WE SAW THIS DURING THE GILDED AGE. WHEN A FEW COMPANIES HAVE TOO MUCH CONTROL OVER MARKETS, PUBLIC AND POLITICAL OPINION SOURS ON THEM.
— MARGARET O'MARA

**Q. You're currently researching the Gilded Age, which gave way to the Progressive Era — a time when the government began reining in big business. What were the catalysts for change — and do you see any in our current era?**
Bigness creates backlash. We saw this during the Gilded Age. When a few companies have too much control over markets, public and political opinion sours on them. We saw this in the past decade with the so-called "techlash" around social media companies.

How did the first Gilded Age end? After a long period of reform and steady efforts to build up government capacity to wisely regulate — not overturn — the capitalist system.

There was great concern about the survival of democracy with such extreme polarization of wealth. Leaders of progressive reform were mostly middle-class professional elites who realized it was in their economic and political interest to even out the playing field — that that would help foster a stable society of opportunity and growth.

Progressive reform began in part at the local and state level with labor laws in the early 1900s. That percolated for decades and became national and institutionalized in the 1930s with the New Deal, after the Great Depression. I hope it doesn't take a global economic meltdown to effect a fairer system today.

The American experiment has been remarkably durable despite the many adverse headwinds it's experienced over almost 250 years. This too will pass, but not by us sitting back and holding our breath. It will require the work of many people, including the people at the very top of Silicon Valley. They have a responsibility that comes with their great power and wealth.

*Jen Kirby '13 MS is a freelance journalist based in New York City. She writes about foreign policy, national security, politics, human rights and democracy.*

Illustrations by Doug Chayka

# Alumni


WORLD CHAMPION WHISTLER

**Jay Winston '98 was a contestant on *America's Got Talent* in 2025. Winston, who won the Masters of Musical Whistling International Festival and Competition in 2023, is also featured in the 2025 film *Whistle*, a documentary about competitive whistling. Read more about him on page 53.**

# Creation

LUKE STAGE

JUST KEEP SMILING

## Five Questions with Liz Coin ’19

Comedian’s one-woman show *Lizzy Sunshine*, which sold out during its 2025 off-Broadway run, explores themes of addiction, family and the pressure to put on a happy face.

### 1

**What is *Lizzy Sunshine* about?** The show is about a woman who does a two-person variety show with her brother. They’ve been doing the show for a long time, but at this performance, she motions for his big entrance, and he doesn’t show up. So she has to scramble to make it look like nothing’s wrong — because the show must go on.

It’s a metaphor for what it feels like to be the little sister of someone with addiction. … It’s about being this hyperpositive, fix-it type character, but behind the scenes, it’s not so good.

### 2

**Where did your inspiration for the show come from?** The show is inspired by true events. My older brother has a long history of health troubles and cycles of addiction. There’s this common thread among those of us who are close to someone with addiction: We have this cheerleader trait. Typically, we talk about the person suffering from addiction, and they’re the focus of the story. But in this case, Lizzy Sunshine is the main character.

### 3

**What was your creative process like?** I really learned patience. I have been a performer and a writer for a long time, writing sketch comedy and characters and doing improv. But this one was different. It came together slowly. The way I explain it is that it already existed within this block of ice, and I just had to chisel the ice away to reveal the final product.

### 4

**How did you know you wanted to go into comedy?** I wanted to go to Northwestern because it was near Chicago and the Second City. [Coin is from Bettendorf, Iowa.] I was dead set on going to the Second City’s Conservatory before I finished undergrad, so I did it during my junior and senior years.

Before that, I was always doing theater but would only get cast as the funny parts. I wanted to be Éponine in *Les Mis* so bad, but I was cast as Madame Thénardier — and it was the right move. I’m not the lead; I’m the funny old woman in the corner.

I loved Northwestern. I got to take classes that weren’t comedy but made me a more well-rounded thinker. And it gave me my closest friends and my support system, which, as an artist, is everything.

### 5

**You’ve taught improv in rehabilitation centers. How did that come about?** During COVID, I couldn’t perform very much. I was living in Chicago and was like, “What am I going to do with my niche skills?”

My brother, who’s been in rehab centers, always talked about how boring they are on the weekends. So I thought, “I bet these centers are looking for programming. … I could teach improv.” The coolest thing about it is the human connection.

Now that I’m in New York City, I’ve been going into corporate offices and using improv as a tool for communication and connection. After *Lizzy Sunshine*, I hope I can start teaching more in rehab centers. I think laughter is the best medicine, so let’s go be silly and walk around and pretend we’re dinosaurs.

*For a longer Q&A, visit alummag.nu/Coin.*





REID: ELLIOT MANDEL; CLASS ACT + NIGHTCAP: LANDRY HUDMAN

DOUBLE BASS MAESTRO

**Grammy-nominated composer and bass legend Rufus Reid ’71, right, performed at Pick-Staiger Concert Hall on Oct. 4 during Homecoming and Reunion Weekend. Reid and his eponymous quartet — including tenor saxophonist Roxy Coss, left, pianist Steve Allee and drummer Kenneth Salters — performed a selection of Reid’s compositions and jazz standards, including Duke Ellington’s “Sophisticated Lady.” Internationally recognized as one of today’s premier bassists, Reid has recorded over 500 albums and written music for solo bass, for chamber and jazz ensembles, and for string and symphony orchestras.**

SPEAKEASY VIBES

## Table for 16?

As a Northwestern undergrad, Shreena Amin ’04 and her friends hosted an annual Dillo Day brunch. She remembers hundreds of students pouring into her Evanston off-campus house for made-to-order omelets.

Since then, Amin has worked as an investment banker, a startup co-founder, a tech executive — and now, fittingly, a restaurateur. She is co-founder and CEO of Class Act + Nightcap, a fine-dining restaurant and speakeasy in Chicago’s Bucktown neighborhood. Launched in July 2025, the 16-seat restaurant features a single communal table. Amin and her co-founder, chef Nicolai Mlodinow, want guests to connect with people they haven’t met.

“We spend more time alone and on our digital devices than ever before. There are fewer reasons and spaces to interact with strangers,” Amin says. “Yet when it happens, it’s almost always a life-enriching experience.”

Amin works closely with Mlodinow to curate Class Act’s 13-course dinner menu. The dishes on the inaugural menu elevated Mlodinow’s childhood favorites and included three-cheese quesadillas made with tarragon tortillas alongside horchata crema and caviar.

There are two dinner seatings each night, at 5:30 and 8:30 p.m. After the meal, guests move to the bar, Nightcap, for bespoke cocktails.

Amin’s Northwestern network has come out in support of her new venture, becoming investors and patrons. “Every weekend,” she says, “we have at least a handful of guests who are Northwestern folks.”

Reenactor Paul O'Shaughnessy as Maj. John Pitcairn during a Pursuit of History tour

A TOUR THROUGH TIME

# Bringing History to Life

A decade-long series delves into the details of the Revolutionary War.

In 2005 Lee Wright '87 MBA bought a centuries-old house in Marlborough, Mass. "It dates to 1780, which is not unusual around here," he says. "But I was curious about who had owned it." So Wright visited his local historical society.

Learning about his own house and visiting historic sites in New England sparked a broader interest in history. Today, as founder and president of the national nonprofit The Pursuit of History, he's creating new ways for others to learn alongside him.

The Pursuit of History for America's 250th is a 10-year project that will travel to two historic sites every year through 2033, focusing on what happened at each site 250 years ago. The three-day programs combine presentations with visits to historic landmarks as well as archives and museums, sometimes with behind-the-scenes access.

The series covers not only prominent historical figures but also little-known individuals. "It's impossible for most of us to put ourselves in the shoes of someone like George Washington," Wright says. "It is much easier to imagine being a farmer with a family or a merchant who depends on imports from England. Think about the difficult decisions they had to make, especially when they had no idea what the future held."

Wright, who has a business background and startup experience, says his status as a newcomer to historical study helped inspire the Pursuit of History format. "People travel from across the country to attend these events, and the 40 spots fill up fast," Wright says. "This small-group, deep-dive approach — examining where history happened and why it happened — has appeal.

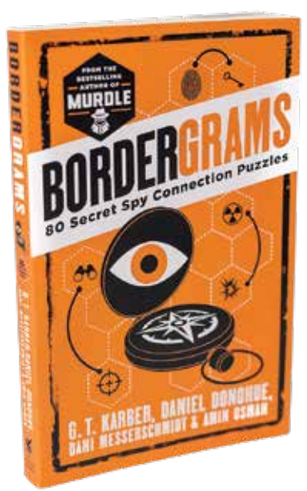
"Everyone will be celebrating the nation's 250th anniversary on July 4," he adds, "but it was a long slog after 1776 before independence was finally achieved, and that's why we created this series."

A SPY'S GAME

## *Bordergrams* by Daniel Donohue et al.

This book of 80 brain teasers doubles as an international spy novel. Co-written by entertainment lawyer and former TV producer Daniel Donohue '14, alongside *Murdle* series author G.T. Karber, Dani Messerschmidt and Amin Osman, *Bordergrams* puts the reader into the shoes of a secret agent whose mission is to divide up regions of sparring districts into new countries.

The morality of this mission, however, is dubious from the outset. Written from a second-person point of view, the book's directives are formatted as letters sent from a mysterious handler, who gives the reader (ahem, secret agent) a series of word clues that hint at commonalities among districts. After identifying the common themes and drawing the new nations' borders, the reader flips to the book's answer key, which contains the puzzles' solutions along with correspondence that advances the story's plot. The more puzzles the reader completes, the more the narrative unfolds, full of romance, intrigue and betrayal.




O'SHAUGHNESSY: JOE TACYNEC; *BORDERGRAMS*: SHANE COLLINS

See Renee Royale's art at alummag.nu/Royale.

ROYALE: COURTESY OF RENEE ROYALE

ART MEETS SCIENCE

# Photos From 'The End of the World'

Renee Royale combines photography, philosophy and ecology in her art.

There's a place in Venice, La., that locals call "The End of the World."

"It's the last place you can access by car before the Mississippi River spills into the Gulf of Mexico," explains Renee Royale. A conceptual artist, Royale '25 MFA wanted to see the place for herself. "Adjacent to the area there is a gravel road that extends farther, leading to an industrial plant," she says. "And it's like, 'Oh, the irony. The End of the World ends in industry.'"

She took out her Polaroid camera and snapped some photos of the landscape. At the same time, she brought a few empty jars to the riverbank and collected water samples.

One night, under a full moon, Royale submerged the Polaroid photos in the river water. She had previously experimented with putting Polaroids in water but was curious to observe the effects of river water, which can contain pollutants and other chemicals. "I left them for a moon cycle and then just saw what changed," she says.

The results were striking. The photos became distorted, producing unique patterns and colors that resembled abstract watercolor paintings. Different water samples created different effects on the photos. "I kept the moon cycle as part of the experiment," she says, so "time was the control," while the water and photos were the variables.

Royale — who splits her time between Chicago and New Orleans — used a similar process with Lake Michigan water for her 120-photo series *Rituals of Belonging*. "I went back to the same bench over a two-month period ... taking photos of the lakeshore from the same exact spot," she says.

Royale reproduces enlarged versions of the altered Polaroids for exhibition. Four of the images from her *Landscapes of Matter* series are included in *New Photography 2025: Lines of Belonging* at the Museum of Modern Art in New York City, which runs through Jan. 17. Two of them will remain in the museum's permanent collection.

THE SKY'S THE LIMIT

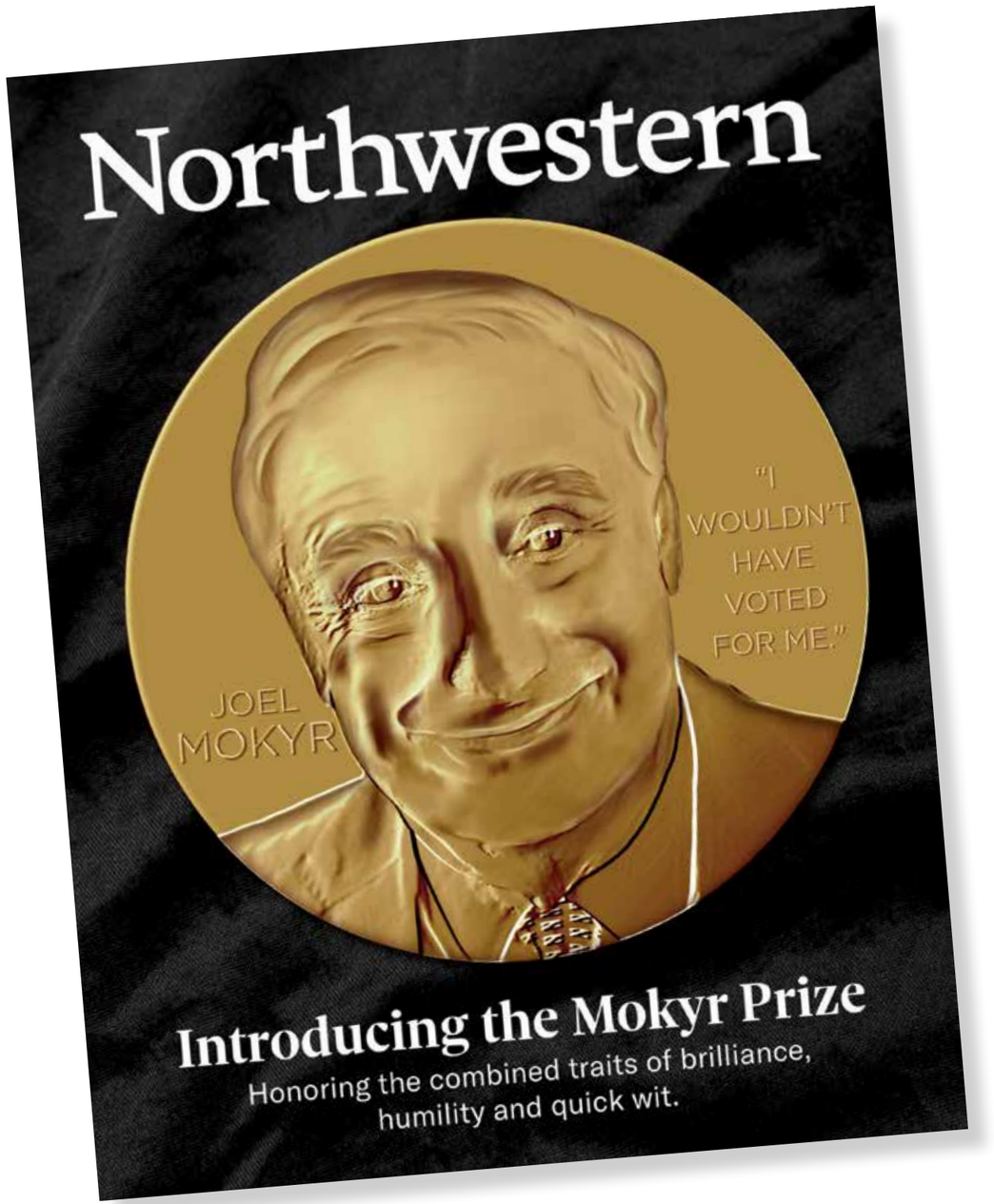
# A Runway for Aspiring Pilots

Melinda Holmes Ellwanger '88 comes from a family of aviators. Her father and grandfather were pilots, and her son is a certified flight instructor (CFI). Though Ellwanger chose a different career path — as a civil rights attorney — she noticed a startling similarity between the industries.

"Like the legal field, aviation is a very male-dominated industry," says Ellwanger. In 2024 the U.S. Bureau of Labor Statistics reported that less than 11% of all aircraft pilots and flight engineers were women, and 88% were white. "One of the barriers for students in achieving aviation success is the inability to find a compatible CFI."

So Ellwanger teamed up with her husband and son to launch Lima Flight, a mobile app that helps aspiring pilots find a flight instructor or flight school that fits their needs. Users can filter their preferences and then send a connection request directly through the app. "Finding CFIs is still done rather archaically — calling fixed-based operators at nearby airports, Google searching and word of mouth," Ellwanger says. "The Lima Flight app gathers those resources all in one place."


*Learn more about the app at alummag.nu/Ellwanger.*




**Professor Joel Mokyr never expected to win a Nobel Prize. "Everybody has a list about whom they think should win, could win, will win," Mokyr says. "I wasn't on my list."** For more on Northwestern's newest Nobel laureate in economic sciences, see page 9.

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# A LIVING PHARMACY

**Engineering professor Jonathan Rivnay and colleagues created an implantable pharmaceutical factory that can produce and dispense medicine on demand — from within the body. Engineered to manufacture drugs that treat disease or heal injuries, the "living" implant could allow doses to be individually tailored and adjusted over time. "It could be a whole new paradigm in how we deliver medicine in a personalized manner," Rivnay says.**

*Learn more on page 22.*