

MIT's Oldest and Largest Newspaper

thetech.com



WEATHER, p. 2

FRI: 67°F | 49°F  
Cloudy.  
SAT: 53°F | 42°F  
Rain.  
SUN: 70°F | 51°F  
Partly Cloudy.

Volume 146, Number 9

Thursday, May 28, 2026

# Ravyn Lenae performs at MIT for SpringFest 2026

The pop artist, famous for "Love Me Not," took to the stage in Johnson Ice Rink

By Jada Ogueh  
NEWS EDITOR

On May 2 at 8:30 p.m., singer-songwriter Ravyn Lenae took to the stage in Johnson Ice Rink for SpringFest 2026. The annual concert, organized by the MIT Student Events Board (SEB), attracted hundreds of people, both within and outside the MIT community. The opening acts were all bands composed of MIT students: Burnt Sugar, Performative Brother Ensemble (PBE, a play on the actual fraternity), and The Deuce.

Just the day before, SEB held the SpringFest Carnival, which included an obstacle course bouncy house, fried dough, and student booths with free food and prizes.

Kennedi Jackson '29 got a front row seat to Lenae's performance. She was impressed by SEB's hard work and everything from the DJ to the headliners. "I can't wait to see what they have in store for next year," she said.

Meagan McFadden '29 attended with Jackson and also loved the performance and the SpringFest carniva



PHOTO COURTESY OF DAKA EJILEMELE

Burnt Sugar performs at MIT SpringFest on Saturday, May 2, 2026.

val the day before. "Ten out of ten, would recommend," she said.

The Tech reached out to SEB for an inside look at the concert's logistics. SEB Co-President Sydney Smith '27 found the event a huge success and was "thrilled" by the quality of Lenae's performance. The event went smoothly, due to collaboration with MIT Student Organizations, Leadership, and Engagement (SOLE), Campus Activities Complex (CAC), Department of Athletics, Physical Education and Recreation (DAPER), SEB's production managers GBM6, and Red Bull, who provided drinks at the concert.

This year, SpringFest was held inside the Johnson Ice Rink for the first time, since Field A, the usual venue, was not available due to renovations on the Fran O'Brien Baseball Field and Briggs Softball Field. The cheaper

venue freed up money for production upgrades, including a background screen and lighting enhancements, according to Smith. "Being inside also guarantees a concert even if there are weather concerns," she noted.

While she said that Johnson Ice Rink was a great venue, Smith added that the board hopes to gain access to larger spaces such as Killian Court in the future. "Its iconic architecture that is so central to the MIT experience is really what we need to take this event to the next level and cement SpringFest as a must-see annual tradition," she said.

Smith also mentioned a few difficulties in organizing SpringFest this year. Aside from the unexpected venue change, the main challenge laid in the delay in funding information. While SEB had selected an artist by

October, they could not confirm contract details until December. Despite everything, Smith said the contract was eventually signed by SEB's internal deadline "without too much trouble."

In terms of improving SpringFest for next year, Smith pointed to an increase in student feedback and budget. While she noted it was impossible to please everyone, gaining more student input helps SEB to pick a genre, venue, and inform the final artist choice. A larger budget would give SEB "more freedom" to pick an artist that "truly resonates with the student body" and improve production, according to Smith.

"I would strongly urge any students who want to see a bigger SpringFest to voice their concerns to the UA or directly to admin," she concluded.



PHOTO COURTESY OF DAKA EJILEMELE

Headliner Ravyn Lenae performing at MIT SpringFest on Saturday, May 2, 2026.



PHOTO COURTESY OF DAKA EJILEMELE

The crowd of students watching the MIT SpringFest performances on Saturday, May 2, 2026.

## 05/28 IN SHORT

Commencement is from Wednesday, May 27 to Friday, May 29.

Degrees will be awarded on Thursday, May 28.

Registration for summer classes opens on Monday, June 1.

Fall pre-registration is due on Friday, June 12.

Congratulations Class of 2026!

Interested in joining The Tech? Email [tt-join@mit.edu](mailto:tt-join@mit.edu)

Send news and tips to [tt-tips@mit.edu](mailto:tt-tips@mit.edu)

## DINGLE LIVING

The challenge of filling a space without a roommate. **CAMPUS LIFE**, p. 3

## MATH OUT THE BIOLOGY

The intersection of the world of math, physics, and biology. **SCIENCE**, p. 13

## FALLING FRESHMAN YEAR

And what it takes to get back up. **CAMPUS LIFE**, p. 9



## T-SHIRT HAUL

Collecting school shirts through volunteering. **CAMPUS LIFE**, p. 8

## THE ROAD TO DISPARITY

Analyzing traffic accident risk by race. **SCIENCE**, p. 11

## SECTIONS

News . . . . . 1  
Campus Life . . . . . 3  
Science . . . . . 10  
Entertainment . . . 14



## SENIOR SIDE NOTES

## On luck

Reflections on chance, support, and the debts that can only be paid forward

By Kanna Pichappan  
CAMPUS LIFE STAFF WRITER*"I am because we are." — Ubuntu proverb*

When I look back on my life, I find that the extraordinary, selfless support of countless individuals and astonishing good luck have played a large part in it.

**Beautifully, many such people never seem to think of what they do as extraordinary. To them, it is simply a way of life.**

People often celebrate the "self-made" individual — the one who works evenings and weekends, misses vacations, and wills their success into existence. While it is absolutely true that immense effort on one's own part is necessary to realize a goal, becoming too immersed in the idea of "self-made" success can lead us to accidentally lose sight of how profoundly conditional our lives are on the support of the people around us.

Beautifully, many such people never seem to think of what they do as extraordinary. To them, it is simply a way of life. I think of my seventh-grade math teacher, who stayed with me after school until five in the afternoon, multiple days a week for several months, to help me get up to speed with algebra. I think of my research mentor, who, if I ask, will Zoom call with me even on evenings and weekends to help me practice a presentation.

Some of these moments of generosity were quiet — a desk lamp lent by a roommate for every one of my medical school interview Zoom calls, friends in New Jersey

who offer rides before I even have to ask because they know I will need one, friends who pick up the phone even when they're busy. Others were more unexpected.

During my MISTI India internship, a medical student I was working alongside noticed that I had been unenthusiastic about what I was eating for lunch. When they learned the reason — that I was too nervous to cross the chaotic streets of Bangalore, which operate with nearly no enforced traffic regulations — they immediately stopped what they were doing and walked me across the street. My high school science teacher let me run experiments in her classroom any day, all day, without a second thought. My Course 6 suitemates stayed up until midnight to fix my laptop, which unexpectedly stopped working the night before I had to leave town for a medical school visit, despite both of them having exams the next day. *The Tech* welcomed me and let me write even though I arrived, rather late to the game, in my senior spring. At Addir, MIT's interfaith dialogue program, my peers sat with me in the middle of the night when I unexpectedly fell ill during our retreat at Cape Cod.

**Realizing how much my life has not only benefited from but is genuinely contingent upon so many other people and communities is deeply humbling.**

And where do I even begin with my family, neighborhood, and community?

As much as my ego may want to indulge the thought that I am "self-made," realizing how much my life has not only benefited from but is genuinely contingent upon so many other people and communities is deeply humbling. And yet, even this doesn't tell the whole story.

Alongside the support of others runs another powerful force: luck. I think about every application I submitted — the way someone on the other end happened to read it on a day it resonated with them and there happened to be a spot that hadn't yet been filled. Every time I showed up to exams and found problems I could actually solve — knowing full well that on another day, with a different set of questions or with a less clear mind, the outcome might have looked very different. The random housing lottery that placed me with not only a great roommate and friend, but someone I could look up to and be inspired by — a small administrative coin flip with tremendous effects on my college experience and life. The experiments I ran that yielded meaningful findings, when so many didn't. The mentors I landed with by chance, whose guidance shaped me in ways I am still discovering. While luck often only becomes possible and meaningful when met with effort and dedication, when I look back, it is impossible to deny how large a role chance plays in how our lives unfold.

I raise all of this not to place responsibility on others or luck, nor to lift the weight from our own shoulders. Rather, I've noticed that sitting with these realizations can be useful. First, recognizing how contingent my life is on others and on luck cultivates humility. Second, it offers a kind of clarity — a reminder that there are almost always external forces that must align for an outcome to be possible. Applied to success, this keeps the ego in check. Applied to failure, it can keep self-esteem from collapsing. While failure almost always holds

lessons about what we can do differently in the future, knowing that luck is part of the equation can help us keep rolling with life's challenges in a more bearable way.

Finally, there is something beautiful about recognizing the roles others play in our lives, because there is sometimes very little I can do to pay back the people who helped me — not directly, anyway. My seventh-grade math teacher who stayed after school multiple times a week for several months to work through algebra with me needs very little from me now. I have written cards to him and visited his classroom. But there is no apparent way to repay, in kind, what he gave me.

**There is something simply beautiful in the realization that, sometimes, the only way to pay it back is by paying it forward.**

If I can't pay it back, the next option is to pay it forward — to give to others what was given to me, even if not to the same people. There is something peaceful and gratifying in this act of kindness: the sense of returning to the world the generosity that was once extended to you. There is also a fleeting glimpse of self-transcendence in the act of giving without expectation of return — a dissolution of the boundary between self and other — that many seek. Finally, there is something simply beautiful in the realization that, sometimes, the only way to pay it back is by paying it forward.

I wonder, too, whether for many of the people who help us along the way, the only repayment they ever seek is for us to do the same for someone else.

## FROSH FILES

## What I did with my dingle this year

Perhaps surprisingly, nothing much

By Shelly Yang  
CAMPUS LIFE EDITOR

As a freshman moving into the newly-renovated dorm East Campus, I expected a pretty nice room that I would be happy with coming back to after a long day of work. What I did not expect, however, was the additional plus of my room being a dingle.

Before coming to college, I had never heard of the term "dingle," a portmanteau of "double" and "single," but apparently, it means a room for two people with only one assigned occupant. It sounds silly, but perhaps less so than "souble" (or maybe "dingle" sounds less silly just because it's used more). Nonetheless, I was very surprised to not end up having a roommate, because not only was I in a new building, but also I was on Fifth West, a popular floor.

**In the end, I ended up doing nothing.**

Needless to say, I had very few complaints about living in a dingle. From what

I'm aware, it is pretty uncommon for freshmen to have a single (unless you're living in MacGregor, a dorm with predominantly single rooms), so a lot of people were pushing me to do something with that extra space. Perhaps I could push the two mattresses together! Or maybe loft my bed so I could have a cozy couch (sourced from Facebook Marketplace) underneath. I could decorate the room to my heart's content.

But in the end, I ended up doing nothing.

I think this choice speaks to who I am; my room just ended up being a place where I went to sleep. The most decor I had was on my door: over two dozen (empty) CharlieCards, an embroidery project, Polaroids of me and my friends, and an assortment of memes. Inside my room, all I had were birthday cards from friends and family, along with wall art of cardstock butterflies — also a birthday gift.

I took pride in the bareness of my room. Every time I invited friends over, they would always be quite surprised that the room looked like I was preparing to move out the next day. Sometimes, the people

I hosted — whether for Math Prize for Girls or for CPW — brought more items than the possessions I had outside my wardrobe and cabinet. While I sometimes wished I had fairy lights, posters, or other decor, I would always think about how I

**When I opened my door to the outside, I'd see the Silksong mural I was working on with my friends; the LEDs lining the walls, installed by our legendary Course 6-2 senior; and the cats that were always so friendly and approachable.**

would have to pack these items up when I later moved out. Hence, I lived vicariously through my friends' rooms, who had a furnished shelf just for shoes, snake plushies adorning their window, or vines taped up neatly along their wardrobe.

Despite not having to pack too much at the end of the year, the bareness did get to me sometimes. Eventually, I felt a little lonely whenever I was in my room, to the point that whenever I tried to work in it, I would spiral and crash out from staring at the barren, white walls.

But when I opened my door to the outside, I'd see the Silksong mural I was working on with my friends; the LEDs lining the walls, installed by our legendary Course 6-2 senior; and the cats that were always so friendly and approachable.

Which is why I'm so excited for a roommate next year!

Maybe I will still barely decorate my room. Perhaps my only contribution to the door of me and my future roommate's door will be the overwhelming number of CharlieCards. Or we'll end up going all out, causing a complete character shift in me. Only time will tell.

DO YOU LIKE DOODLING DURING CLASS? ARE YOUR PSETS COVERED WITH DRAWINGS? IF SO, BECOME A TECH ILLUSTRATOR!

E-MAIL TT-JOIN@MIT.EDU



# Getting dumber, in a good way

Re-joining News in my junior year forced me to confront my ego

By Sabine Chu  
SENIOR EDITOR

I have an admission, and it's humiliating. Still, I'd guess that it's relatable to many readers here, so here goes: *For a very long time, one of the things I liked most was for other people to think I was smart.* Obviously, I cared about how my instructors, mentors, and supervisors viewed me; pretty reasonably, I hoped that their favorable opinions would translate into high grades. Less normal was the way that my craving for academic validation seeped into my social life.

I often found myself reveling in the rush of finding an answer faster than my friends. The first time was in the fifth-grade Math Bowl, my greasy bob flipping and Harry Potter glasses rolling off my nose as I slammed the buzzer to answer the question. Later, after spending a good chunk of my pre-fresh summer vacation reviewing classical mechanics, I chased a similar high in 8.012, whose psets I proudly wrote in pen.

Even more embarrassingly, I liked to sit in a dorm lounge while my Bic pen and I worked out the nuts and bolts of momentum conservation, so other people would glance over my shoulder and think — and you're allowed to groan as you read this part, because I definitely am as I remember it — *Wow, she's not just in the advanced version of the class, but she's so confident in her knowledge that she's not using a pencil!* [1]

**The news department, it turns out, is a good place for someone with a lot of questions. Your job as a reporter isn't to be clever.**

Maybe the examples I've given make some sense: I'm a mathematics major who thought she'd double in physics, so of course I wanted to seem good at those subjects. More generally, though, I felt a need to excel at technical classes, and more importantly, to be known as someone who excelled. On my MIT application, I'd written that I planned to take organic chemistry, not because I wanted to synthesize molecules for a living or because I hoped to

pursue a career in medicine (like many of my future colleagues in *The Tech*), but rather because I had gotten a B in tenth-grade Advanced Chemistry and I felt I had to correct that mistake.

While I didn't end up tackling 5.12 (Organic Chemistry I) in my junior fall, I decided to take 8.05 (Quantum II) and 18.226 (Probabilistic Methods in Combinatorics, a graduate course) without the prerequisites for either, mostly because they seemed like the sort of courses a really intelligent person would waltz through. Predictably, my understanding and I were, as the kids say, chopped and cooked. I was miserable while studying and permanently confused in the rare moments that I attended lecture.

Moreover, I found myself completely directionless regarding where the skills I was supposed to be learning — in these classes, in my research, in the technical interviews I kept bombing — were meant to lead. Nothing made sense, and when people expressed their shock that I was taking Quantum II without Quantum I, the secretly-hoped-for balm, i.e. an insinuation that I'd have to be *sooooo* smart to be doing that, didn't do much.



Sabine Chu '26, the Vol. 145 Associate News Editor, stands outside of The Tech office one last time.

It was in this state that I re-joined *The Tech*. Yes, re-joined: I'd started in Copy as a freshman but dropped after I decided I needed to devote more time to my classes. This time, somewhat unsure as to who else was in the club, how much of a time commitment it would be, or even what a college newspaper reported on — but knowing that I needed to do something that wasn't about being *cracked* and *technical* and *smart* — I landed in News.

That department, it turns out, is a good place for someone with a lot of questions.

**But somehow, as time went on, I was able to let go of more and more fragments of ego.**

Your job as a reporter isn't to be clever. Frankly, it's better if your interviewees think you're dumb; they'll walk you through their thought process more thoroughly. Conversely, if you seem too knowing, you might strike them as incurious or biased. Asking "smart," tricky questions is important, but so is getting the who-what-where-went-why correct. While working on a piece, you empty your brain of assumptions because you need to make room for the facts. Especially if you were like me at the time, your self-image is constructed from a million guessed-at outside opinions.

Tamping down my desire to seem in the know wasn't always easy for me. I wasn't plugged into campus events, so I didn't pitch my first few articles, unlike many *Tech* prospects. Instead, I received assignment ideas from the editors. One of my earliest pieces concerned a unionization attempt at a nearby coffee shop. I spent the morning of the walkout reading as much as I could about the chain and the legal ramifications of unionization. Once I walked into the shop, I proceeded to ask customers highly specific questions, but not their last names. When my editors pointed out the issue, it was mortifying to realize that I hadn't taken the time to carefully read the paper's requirements for attributing quotes because I had assumed I would *just know* how to do it.

But somehow, as time went on, I was able to let go of more and more fragments of ego. Accordingly, my reporting grew stronger. My first independently pitched article came out of a talk I attended on a whim, based on

a recommendation from a professor whose class I took on another. An interview arose from a visit with MIT's Science Policy Initiative, which I joined in hopes of forcing myself to confront my intellectual weak points, to the Massachusetts State House. Even a short emerged from a "tell me more" rather than an "oh, I heard" in an informal conversation about a shut-down program.

As Associate News Editor, working with at least four other writers and editors each week reined in my needs to be smart and right. Early on, I accepted that Vivian Hir '25, *The Tech* veteran supreme, knew more than me about

**Ask dumb questions, as many as you can to as many people as possible, curiously stupid and stupidly curious and okay with being known for it.**

how the paper worked. Quibbles with reporters over method or structure often resolved in a realization that the other person was correct. You make so many mistakes as a first editor that at some point, you stop caring whether the copyeditor thinks you're even literate.

I'm proud of my work at *The Tech* as a reporter and editor over the past year and a half. As a department, News has covered some of the most important issues facing MIT and the globe; as an organization, we've tightened up our systems and strengthened our community. But, selfishly, my biggest point of pride isn't about a single article or even the quality of the newspaper as a whole. Somewhat paradoxically, I'm most proud that *The Tech* has made me realize how little your pride matters. It's fine, and even commendable, to want to be smart. But you — or at least I — will be a lot smarter, and a lot happier, if you forget about seeming that way, or even being that way, and ask dumb questions, as many as you can to as many people as possible, curiously stupid and stupidly curious and okay with being known for it.

[1] Current Sabine's note: the class in question is a GIR, so I don't know why I thought people would care.

## ALOR'S LORE

# On exiting

Reflecting with hard-earned optimism

By Alor Sahoo  
SENIOR EDITOR

As I exit MIT after four long years, I internalize one specific message that *The Tech* has instilled in me, regardless of my specific title in any given year: that you can just *do it*. Go write about that topic. Cover that event. Interview that Nobel Laureate. Do that cool thing. To anyone reading, this seems obvious, and I can already picture you rolling your eyes. But for me, as a sophomore, seeing articles that I either worked on and edited appear in print biweekly — courtesy of our amazing production staff, copy staff, and many others — served as a constant reminder of my autonomy.

**As V144 Campus Life Editor, I also had the distinct pleasure of editing other people's work and learning so much about their lives and creative process.**

At first, that manifested as writing both silly and less-silly Campus Life articles, sharing tidbits about me with the amorphous world — some more polished than others. As V144 Campus Life Editor, I also had the distinct pleasure of editing other people's work and learning so much about their lives and creative process. In fact, I found writing "in public" so addicting that I took a bunch of literature and writing classes and wrote (part of) an MIT

campus novel for my 21W major thesis! This absolutely would not have been pos-

**But more generally, The Tech taught me the value of being friends with people who stick together when times are tough, but the regularly scheduled show must go on.**

sible without the support of every single individual in *The Tech*. So for that, I'm very thankful.

To be clear, it hasn't been all fun and games. My experience at *The Tech* had its fair share of staffing and fiscal issues, but those problems have made me a stronger person. *The Tech* taught me to chase what I want and empowered me to declare my

**The highs that we embraced and lows that we weathered created a tight-knit group of student journalists who are connected by a rather beautiful experience.**

writing major — even though it's a road less traveled by. *The Tech* taught me to persist, problem-solve, and always ask "what if?," a mindset that helped me get career opportunities that I never would've dreamed of before. *The Tech* taught me to handle embarrassing mistakes — both my own and others — with grace. But more generally, *The Tech* taught me the value of being friends with people who stick together when times are tough, when deadlines are quickly approaching, when problem sets are piling up, but the regularly scheduled show — whether the

newspaper or something in your personal life — must go on.

So, when I become old and look through my yearbook, I'm not going to feel bitter that *The Tech* has a much smaller group photo than other organizations. Because I know that the highs that we embraced and lows that we weathered created a tight-knit group of student journalists who are connected by a rather beautiful experience. And I'm so blessed to have been a small part of that.

PS: In case you're wondering — I have always used em-dashes a lot!



Alor Sahoo '26 was the Vol. 144 Campus Life Editor of The Tech.

# Learning what it means to be an “editor”

The most important things I’ve done for ‘The Tech’ came when the paper had to choose between the easy route and the hard one

By **Geoffrey Enwere**  
SENIOR EDITOR

If you message me, you may notice that I always respond with correct grammar and punctuation, which apparently disturbs others. I still don’t know why people think it’s strange — I just hold myself to a high lexical standard! So, when the opportunity came to judge other people’s writing as a copyeditor for MIT’s student newspaper, I had to go for it.

As a copyeditor, I immediately felt the importance we brought to the quality of the paper. While I wasn’t much of a writer (hence why this is my first Campus Life article), I felt fulfilled using the power of precise language to draw out the full potential of an author’s message.

**It was upon my election as the new Managing Editor that I truly understood the meaning of the term “editor.”**

As Co-Copy Chief, I got a taste of what it meant to be an “editor” for *The Tech*. I aligned the newspaper’s copyediting standards with the Chicago Manual of Style and

got to train a new generation of pedantic copyeditors. However, it was upon my election as the new Managing Editor that I truly understood the meaning of the term “editor.” As V145 Managing Editor, I managed the chaos and complexity of the newspaper’s organizational logistics. Because being an “editor” for *The Tech* is more than just checking other people’s work. It is to harness the vast and roughshod potential we had and to harness it for the best ends possible.

**A student newspaper is not very different from an established publication. We have the same standards, the same rules, and the same goals.**

Along the way, I’ve been fortunate (or unfortunate) enough to wear even more hats. I’ve helped with breaking stories when the News Department needed a hand. When the Photography Department needed me, I donned a camera and became a mediocre photojournalist. I’m now helping the Technology Department rebuild our server infrastructure. All these roles have been in service of making *The*

*Tech* a better-run organization. I’ve never been afraid to poke and prod at a system to see if I could make it better, even if the result wasn’t perfect.

However, all that was not the true reason I joined *The Tech*. I joined because *The Tech* is such a core part of the fabric of MIT. A student newspaper is not very different from an established publication. We have the same standards, the same rules, and the same goals. We have a responsibility to hold the powerful accountable and report the truth however we see it. As the saying goes, “If someone tells you it’s raining, and another tells you it’s dry, it’s not your job to quote them both. It’s your job to look out the window and find out which is true.”

The most important things I’ve done for *The Tech* came when the paper had to choose between the easy route and the hard one. I’ve always considered myself relatively good at standing my ground. The principles I hold are important to me, and I’m willing to be unpopular in order to adhere to them. It was Atticus Finch who said, “Before I can live with other folks I’ve got to live with myself. The one thing that doesn’t abide by majority rule is a person’s conscience.” On many points I have disagreed with the actions of others at *The Tech*, or with the newspaper’s previous stances. For example, I wish we could’ve taken a stronger stance on the genocide in Gaza when the discourse was more prominent on

campus and that we could’ve gone harder against the MIT administration on several issues. I’ve once wondered if the right move for my conscience was to step away. But I came to understand that the disagreements I had with *The Tech* were proof that I needed to be there. If I forfeited my place in the sphere that is a newspaper team, who would take it? What stories get buried because there’s no one to push for them? What perspectives go unheard?

At the best of times and the worst of times, I’ve never regretted joining *The Tech*. I would encourage anyone who hates or loves some part of our newspaper (or

**It is when we forfeit our participation in the public sphere that we truly betray our own ideals.**

some part of our world) to engage with it. It is when we forfeit our participation in the public sphere that we truly betray our own ideals. We work best with people who will debate and wrestle with the hard choices to make for the newspaper. To be strong in the face of opposition, even from MIT. Plato said it best: “One of the penalties of refusing to participate in politics is that you end up being governed by your inferiors.”



**Are you dying to tell someone your latest epiphany?**

**Write about it!**

**Join Campus Life @ *The Tech*!**

**E-mail [tt-join@mit.edu](mailto:tt-join@mit.edu)**

**Do you like telling stories about your life?**



**Are you dying to share your latest discoveries?**



**Join Campus Life @ *The Tech* and share your stories with our 15,000+ readers!**

**E-mail [tt-join@mit.edu](mailto:tt-join@mit.edu)**

**Have something to say?  
Write opinion for *The Tech*!  
[tt-opinions@mit.edu](mailto:tt-opinions@mit.edu)**



# Observing the magic

Reflecting with gratitude on the organization that brought me out of my shell

By **Claire Mao**  
SENIOR EDITOR

When I started at MIT, I was a mosaic of the arts and sciences. I prided myself in exploring the creative pursuits of music, art, and of course, writing. Then, the excitement and novelties of freshman fall gave way to courseroading and future-planning, p-setting and studying. Everything else was moved to the margins.

**I was no longer a mere observer of MIT life, but an active participant in shaping how the Institute is represented and how it is perceived.**

I don't think I joined a single club in my freshman fall, though I wanted to. It seemed to me that the best way to set myself up for the next four years was to throw myself into my academics and then build up from there. Despite enjoying new friends, new classes, and essentially a whole new life, I felt something was missing. And then I got an email in February:

*The Tech* Open House - free dinner!

I didn't go to the Open House, but that email is the reason you're reading this article today. I became a copyediting prospective in my freshman spring, hoping to

read others' work as more of an observer while being too shy to write myself. On Tuesdays, I read almost every single article that ended up in print issues. Our team of three Copy staff was small but mighty; we'd take tours through the News, Arts, Science, Sports, and Campus Life sections that color MIT and debate anything along the scale of punctuation to paragraphs. I found surprises and learnings in every corner of the paper, reading articles about professors, research, concerts, and the current events that impact a global community far beyond Cambridge. My time as Copy staff expanded my perspective of myself. I was no longer a mere observer of MIT life, but an active participant in shaping how the Institute is represented and how it is perceived.

**Just when I thought I had to just figure it out on my own, I experienced one of the things I'll miss most about this Institute — community.**

Last year, I was honored to step into the role of Publisher for Volume 145 of *The Tech*. My goal changed from seeking errant typos to defining the direction of the newspaper in an especially turbulent year. Such a nebulous task was daunting, especially as I had never written for *The Tech* before and



LEVY LE—THE TECH

Claire Mao '26 was the Vol. 145 Publisher of *The Tech*.

felt unfamiliar with certain black boxes in the content pipeline. I felt like an impostor, and that maybe I should have remained an observer. Just when I thought I had to just figure it out on my own, I experienced one of the things I'll miss most about this Institute — community. It's corny to say, so bear with me, but I have been so grateful for this community, mentorship, and friendships I've found within our office in Stud 4. To every managing board member who supported and challenged me, every staff member who responded to my Discord messages at odd hours, and every prospective I've talk-

ed to at events: thank you. The people make the place, and in a place that has so much potential to represent, reflect, and inform our campus, having you alongside me has made all the difference.

I'm very proud of the work that *The Tech* has produced these past years, and I know the next leadership team will continue improving on what we left behind. I am equally grateful to have had the opportunity to devote time to the arts through the paper. It has made me feel more like myself.

Thank you, *TT*, for letting me observe some of your magic.

# A special chapter of my life

Finding meaning in journalism

By **Alex Tang**  
SENIOR EDITOR

I grew up a forgetful kid. I could not keep track of hats, water bottles, and books. My mind wandered a lot in school too: I dreamed of things but didn't have the means, knowledge, or intellect to make them happen.

Then, I found writing.

**I discovered what drive was, and what it means to be part of something so much bigger than myself.**

With a pencil and paper, I could let that wanderer in me manifest in words. I even turned it into a game by stringing together massive sentences (that were barely or not grammatically correct at all) as a way of pushing myself to think about language and what I could create — it was fun.

MIT seemed like the place where that fun would come to die. Fortunately, *The Tech* changed that. Well, kind of. My writing has gotten much drier, shriveled like a tomato left out in the sun for too long (but sundried tomatoes are still fire). I came to realize that fun encompasses things far beyond the scope of writing. I discovered what drive was, and what it means to be part of something so much bigger than myself.

I have shared these thoughts using similar terms during my Year-In-Review reflections as the V144 Editor-in-Chief and V143 News Editor, but my feelings remain the same for years since. There were a myriad

of other things that I could have done at MIT. But I choose to be at *The Tech* and work alongside phenomenal, fascinating, and passionate people. There is joy and accomplishment alongside struggle and hardship, and we got to go through it together. I will always appreciate my colleagues for being vulnerable and honest about the complexities we navigated as young people in a world that is spinning a bit too fast.

I am not going to write a whole spiel about how we climbed out of operating in the red and were woefully understaffed. To this day, I am thankful to everyone who bought into our ethos when the going was tough. And with time, they made this paper their own. During this time, I also surprised myself with how badly I wanted to recruit new members despite not even having gotten a Brass Rat yet. Surely there was a hint of desperation, but I do think that was sheer drive.

**I hope that journalism, as we have done at *The Tech*, is a levee against tidal waves of misinformation and lies. Believe it or not, people will notice when good journalism is done.**

Drive and creativity are uniquely human qualities, but are being harnessed by forces both good and evil. I worry about the future. In particular, I am a bit of an



LEVY LE—THE TECH

Alex Tang '26 was the Vol. 144 Editor-in-Chief and the Vol. 143 News Editor of *The Tech*.

alarmist regarding AI: it distorts the truth, and it is horrible that very powerful people in this world are using it for manipulation and deceit. I hope that journalism, as we have done at *The Tech*, is a levee against tidal waves of misinformation and lies. Believe it or not, people will notice when good journalism is done. I am lucky to have been a part of several of these efforts, and it is the greatest feeling to work and edit those pieces at ungodly hours knowing that it can (and will) make a differ-

ence. I am proud that current editors and staff continue to ask hard questions about MIT and are stimulating debate within our community, from our students to the faculty and the highest echelons of Institute leadership. As student journalists, we are both blessed and cursed with the opportunity to grapple with these issues at such a young age, but the process makes us mature.

Being at *The Tech* was the defining experience of my time at MIT. Join up.

DO YOU LIKE DOODLING DURING CLASS? ARE YOUR PSETS COVERED WITH DRAWINGS? IF SO, BECOME A TECH ILLUSTRATOR!

E-MAIL [TT-JOIN@MIT.EDU](mailto:TT-JOIN@MIT.EDU)

# I volunteered for a year

And not just because my mom wanted free shirts

By **Katherine Liu**  
COPY CHIEF

My mom's been disappointed in me since the day I came home from CPW. She'd seen the WeChat photos of merch hauls from the club fair (Midway) and had been ready to proudly share her own daughter's grabs — surely, at least a shirt from MIT Poker Club!

But I had none.

Not one new item of clothing gained from my visit to MIT.

**Had I suddenly locked in, competing ferociously with the prefrush for merch at their Midway? No way.**

My return during winter break was slightly better received! I could offer my mom the PE & Wellness shirt from the swim test and the Class of 2029 Orientation shirt. But the first week had passed by, and with it, another Midway. Still, the same question remained — where were my club T-shirts??

Then finally, *finally*, when I got home last week for the summer, I could at long last fulfill my mom's dreams. I'd even called her about it ahead of time, too excited to leave my gifts a surprise. The glorious bounty of shirts was the first thing I unpacked when we arrived home from the airport, each one beautifully branded with a club name: MIT Science Olympiad (Scioly), Ring Committee (RingComm), MIT Science Bowl, and MIT Educational Studies Program (ESP).

But what happened? Had I suddenly locked in, competing ferociously with the prefrush for merch at their Midway? No way. Did I somehow balance all these clubs and extracurriculars on top of my first semester off P/NR? Absolutely not. The answer lies elsewhere. Intertwined in the threads and cheap print of every shirt I'd collected was a story, the secret to my success: volunteering, my favorite side quest.

I love volunteering. I volunteer that we take a tour of my (and my mom's) new closet! We have many shirts and memories to wade through and rate.

#### MIT Scioly

Shirt - 7/10. Cute art on the back but I've never worn it out.

Experience - 9/10. Some of my dearest memories from high school are from Science Olympiad competitions (like MIT Scioly 2025!), so I love any chance to continue being a part of it. I got to proctor and grade my favorite event, Codebusters, and talk to some former teammates from my high school.

#### Harvard University Science Olympiad

Shirt - 9/10. The long-sleeve shirt had so much aura; I loved the art as well but I messed it up while doing laundry so I've also never worn it :(

Experience - 8.5/10. Same nostalgia as MIT Scioly but a slightly less cool school running it, you know what I mean?

#### Class of 2028 Brass Rat

Shirt - 7/10. Super cool to have this shirt as a class of 2029, but slightly uncomfy.

Experience - 7.5/10. I got this shirt while volunteering to set up for the sophomores' ring premiere; a bunch of us created an assembly line to pack over a thousand gift bags with shirts, stickers, and... shot glasses? They said it would take around four hours, but we got it done in one!

#### MIT Science Bowl

Shirt - 10/10. So incredibly comfy and cute, I wear it to sleep all the time.

Experience - 8/10. I never did Science Bowl in high school, but I was always in awe of the kids who did because they were so smart, and it was no different here. I kept score in the morning (including for the eventual winning team!) and got to watch the team from my high school compete live in the afternoon.

#### ESP Security

Shirt - 0/10. White block letters on a bright red shirt; it was embarrassing to wear.

Experience - 6/10. I was volunteering for Splash! The first day, I stood in Building 26 for hours to offer directions to lost high schoolers, which wasn't the most exciting thing to do. The second day, I got to teach a walk-in lesson on spinning a pencil around your thumb, my favorite party trick — if you consider taking notes at school a party — since sixth grade. I really like teaching, and I was super happy that so many of my students got it by the end!

#### Pie a Pi Phi

Shirt - 10/10. Unfair competition because it's a soft hoodie.

Experience - 7/10. My friend smashed a shaving cream pie into my face and then rubbed two more into my hair, so it would definitely be weird to say I enjoyed the experience more than a mere passing grade. However, I loved supporting my sorority's philanthropy, Read > Lead > Achieve, so it was very much worth it! I wasn't able to attend our spring event, Arrowspike, or else I'd have a shirt for that as well.

Honorable mention to the Math Prize for Girls competition, which I didn't explicitly include because it's not an MIT club. From them, I not only received two Jane Street-branded T-shirts, but also a water bottle, backpack, and stuffed animal.

**I remember sitting in the same iconic seats when I was younger (Walker Memorial! 10-250!) struggling over some insane math problem, knowing that a successful solution could change my life.**

Other organizations that I've volunteered for this year, but didn't receive a shirt from, are the Massachusetts State Academic Decathlon, MIT's English Partner



KATHERINE LIU—THE TECH

The back sides of the shirts accumulated throughout the year.



KATHERINE LIU—THE TECH

The front sides of the shirts accumulated throughout the year.

Program, Brigham and Women's Hospital, MIT Theater Guild, and Y2Y, the youth homeless shelter in Harvard Square. I wish I'd found the time to help out at SpringFest and HMMT as well, among others.

Regardless, I'm extremely satisfied with the way I've spent this past year, waking up at 7 a.m. on Saturdays as often as I could (thank god Dunkin' opens that time as well). Many of the jobs that called to me from the endless slew of dormspam opportunities involved proctoring for high

school competitions; I remember sitting in the same iconic seats when I was younger (Walker Memorial! 10-250!) struggling over some insane math problem, knowing that a successful solution could change my life. (And it did; I'm an MIT student now, aren't I?) I love doing my tiny part to make these competitions run as smoothly as possible, hoping that a kid in the crowd is securing their future like I was lucky enough to do. I hope you're proud of me, Mom.

## Special thanks and best wishes to the Class of 2026 library student workers!

|                 |                   |
|-----------------|-------------------|
| Maria Cortez    | Honorine Munezero |
| Noble Harash    | Carlos Mariano    |
| Eve Harrow      | Salcedo           |
| Siyong Kim      | Nana Sapong       |
| Clay Lewis      | Diego Temkin      |
| Pete Miedaner   | Alan Vazquez      |
| Marisa Montione | Laurel White      |

From all of us at the MIT Libraries

[libraries.mit.edu/stayconnected](https://libraries.mit.edu/stayconnected)

**MIT  
Libraries**

**like food?**

**We have free dinner on Wednesdays at 5-6 PM!**

**Learn about our departments by emailing [tt-join@mit.edu](mailto:tt-join@mit.edu) or coming to dinner in W20-483!**

JOJO'S BIZARRE MUSINGS

# Freshman year: On falling down, again and again

Lessons from trying to be that charming, doing-everything man

By Jojo Placides  
CAMPUS LIFE STAFF WRITER

It was Aug. 23, 2025 when I packed my bags and traveled from innocent, coastal Maine all the way to Boston, Massachusetts. “Finally,” I had thought to myself, straight from years of working my ass off in high school. “I can finally wear that badge of honor and call myself a student of illustrious MIT!” I stepped forward with optimism and hope for the future, unable to see what lay ahead but excited anyway.

“Here it comes,” I whispered. “Here comes the rest of my life.”

**At the beginning of freshman year, I tried to be the charming, doing-everything man who never really stays in the same place.**

Then came orientation week, the first day of classes, Pumpkin Drop, Halloweek-end, Rocky Horror, IAP, a New Hampshire retreat, iFair, first-year formal, and finals week. Thousands of pages of psets, lecture notes, reprimands, and emails to S^3 flew by. Hundreds of faces, some eager to see me, some not. The friends I made, then the friends I lost.

The moments in between. How the dark, sacred night enveloped street lights after long rehearsals in the theatre. How the slush and salt on the gray road echoed the hopelessness of finals week. How rime blanketed the Charles River and how streaks of fuschia lined the Esplanade.

At the beginning of freshman year, I tried to be the charming, doing-everything man who never really stays in the same place. I ran for vice president of the Class of 2029 student council. I made music. I painted murals. I did theatre. I learned the electric guitar. I wrote several *Tech* articles. I made films. I took up photography. Everything under the sun, basically.

When I look back at freshman year, I see a whirlwind of memories, events, faces, scenes, you name it. All this time, I had begged for the hands of the clock to just stop and give me some rest, even for a second. And yet here I stand, at the end of my first year, already a quarter of a way through my journey at the Institute.

And yet in being the “charming, doing-everything man” came the biggest realization of my life: I don’t know how to do... *any...* of this. I’m just a big, clueless, floundering idiot.

In trying to be the man that does everything, I didn’t feel like I did *anything* well. In the midst of all the great guitarists who can perform the solo from “Stairway to Heaven” by Led Zeppelin or “Free Bird” by Lynyrd Skynyrd, I couldn’t hold a candle, only hardly putting together a barre chord. In the midst of all the phenomenal actors in theatre, I could barely deliver (or even remember) a line or a monologue.

And my average day at the Institute was never that of someone who was at the

“top of their game.” On an average day, I’d wake up at 12:14 p.m., hair as messy as fractals, having missed around three lectures already. I’d enter 5.12 (Organic Chemistry I) visibly disheveled, armed only with a notebook and a lousy pen, while everyone else with their neat iPads had already learned the mechanism for hydrohalogenation.

Whenever my friends talked about events and clubs they were excited about, I’d be sitting on the opposite side of the table trying to decipher lecture notes with a billion vague terms. Whenever they talked about how displacement current affects Maxwell’s equations, I’d stare at them, confused, still behind learning what “Maxwell’s equations” even were. Whenever I tried to crack some problem about reporter genes or Dijkstra’s algorithm, my friends called it trivial because they covered it in the recitation that I slept through.

**So... is that it? Have I fallen off from the ambitious, all-star champ I was in senior year of high school? Have I squandered my one chance of showing everyone what I’m made of?**

On top of these things, I’ve been rejected by many organizations this year, even more so than last semester (I wrote about it in a previous article), whereas everyone else got accepted to prestigious consulting groups and great UROPs.

Overall, I’ve learned from freshman year that I don’t think I know how to *live*. Every day is a battle to be fought while, for others, each day seems like a walk in the park.

So... is that it? Have I fallen off from the ambitious, all-star champ I was in senior year of high school? Have I squandered my one chance of showing everyone what I’m made of?

If you can relate to anything that I’ve said, then it’s my pleasure to tell you that you’re definitely not alone in feeling this. Three things to end this on a positive note.

One: don’t be too cruel to yourself. You may have ended senior year of high school with all As, but you haven’t “fallen off” when you’ve ended this year with a couple Bs and a couple Cs. Ask yourself this: would junior or senior year you really survive what you’re going through right now? If those past versions of yourself wore your shoes, they’d disintegrate within a day or so. Therefore, in a sense, you are currently probably the best version of yourself. Moreover, at the end of the day, we’re all teenagers trying to find our way in the world, failing and stumbling along the way. Did you really think you’d have it all figured out at such a young age?

Ultimately, *you* are still the person who fought tooth and nail to get you to the high doors of MIT. You are capable of the most



JOJO PLACIDES—THE TECH

Depiction of me trying to be the “charming, doing-everything man.”

unimaginable things, and you’ve already proven that when you made it here, whether you expected it or not. So be grateful to yourself!

Two: it’s a mere illusion to think that everyone around you has it all figured out. Here’s a big revelation: nobody knows what they’re doing! It’s easy to forget that your peers are only one or two years ahead of you. Often, the ones who appear most “on top of things” are the ones who can hide their problems the best.

You never know if the person who always seems to be ahead of you in problem sets — whom you’ve idealized — is also struggling with finding a UROP. Or if the person who’s doing world-changing research is struggling to keep up with their classes or social life.

**You have the privilege to look at yourself in the mirror. Despite everything, it’s still you.**

Three: the best kind of student is the salvage man. Those who can recover themselves from perceivably hopeless situations are often the ones who succeed the most. To me, people who bounce back after falling hard are always more impres-

sive than those who never fell in the first place.

Because a basic fact of life is this: *everyone* falls down inevitably. In the great halls of the Institute, there’s no shortage of falling down to be had. The more you familiarize yourself with the feeling of fucking up, the more you’ll bounce back when the times get rough again.

In a way, if you’ve struggled heavily this semester, then you’re doing something right. If every day was a brutal battle to you, if each pset is a mountain to climb and each midterm is a volcano to jump over — if you’ve survived this semester with nothing more than a bloodied head — then you’re more ahead than you think.

So wear that blood on your head as a crown of *honor*. You’ve toiled, you’ve lost sleep, and you’ve almost lost hope. But through it all, you’ve made it to the other side.

You have the privilege to look at yourself in the mirror. Despite everything, it’s still *you*.

Entering MIT, I thought I’d get it right from the get-go, being that charming, doing-everything man. But I tried a billion things and failed at almost all of them. In such a large, diverse, and busy place, I’ve made myself look like a fool. And yet comfort comes from knowing this: the rest of my life still awaits me, and with it, comes a lot of chances to get it right.

So, in the next three years, who knows? Anything can happen.

**Like Ben Franklin?**

**See him in your wallet every week!**

Join the Business Department of *The Tech* and earn commission on ad revenue.

Email [tt-join@mit.edu](mailto:tt-join@mit.edu)

# Richard Sutton talks vision for superintelligence in Dertouzos Lecture on May 13

The 2024 Turing Award winner and “father of reinforcement learning” is an outspoken critic of LLMs

By Samuel Yuan  
NEWS EDITOR

On May 13, a packed Kirsch Auditorium (room 32-123) welcomed Prof. Richard Sutton for the Dertouzos Distinguished Lecture. Sutton, widely regarded as the “father of reinforcement learning,” spent the hour speaking about his vision for superintelligence and the architecture that he believes can make it possible.

A contrarian in his field, Sutton has recently gained notoriety for criticizing “large-scale pretraining” and Large Language Models (LLMs). He has asserted that while these methods have enabled breakthrough mod-

Opening remarks for the lecture were delivered by MIT Computer Science & Artificial Intelligence Laboratory (CSAIL) Director and Professor of Computer Science Daniela Rus, who praised Sutton’s work and noted his ability to challenge the status quo.

“Beyond the technical contributions, Richard has been a consistent and provocative voice on the big questions in AI,” Rus said. “He’s really one of those rare scientists whose work is both foundational and still actively agenda setting.”

## “The Bitter Lesson”

Sutton began his talk by framing his quest for an AI agent architecture, a system for how an AI can perceive, reason, and act, as one

man domain knowledge from their training datasets.

“We just have to see whether [LLMs] will eventually be superseded by an opposing approach,” he said.

In sketching a skeptical picture of LLMs, Sutton joins other AI pioneers — including Yann LeCun, who has recently raised over a billion dollars for a research lab that ditches language models for other methods — who have been critical of scaling LLMs as an end-all, be-all to reaching superintelligence.

## Abstract and learn

Sutton then discussed his “big-world perspective” and why it makes learning during deployment, rather than at training time, essential for any truly intelligent agent. He explained that even setting aside the physical world, truly modeling other people or agents is intractable because their minds are just as complex as your own.

“You build a value function, a policy, and a little transition model of the world. You try to even represent the states of the world. [But] it’s too much, it’s too big,” Sutton said.

**“Each feature produces a sub problem. Each sub-problem produces an option. Each option produces a part of the transition model.”**

The complexity of the world means that the model will need to have hundreds of moving parts; therefore, models must be able to discover abstractions on the fly rather than having them engineered in advance.

“It’s not enough to just have to learn. You have to be able to get more complex [at runtime],” Sutton said. “Sure, we can build domain knowledge in, but you should also be proud of what your agent can do in itself at runtime. This is an essential part and a somewhat stronger statement.”

With that in mind, Sutton introduced the OaK architecture, short for “options and knowledge,” as his proposed solution.

“In the OaK architecture, the agent will have many options, and it’ll learn knowledge. The knowledge is what’s in the transition model; knowledge is a belief about options,” Sutton said. “We’re going to learn this high-level transition model of the world. Each feature produces a sub problem. Each sub-problem produces an option. Each option produces a part of the transition model.”

A central goal of this architecture is to enable “open-ended abstraction” by letting the agent generate its own sub-problems in pursuit of reward.

To illustrate the idea, Sutton played a video of a baby exploring a set of toys, moving from one to the next.

“What can I do with this toy, with this piece of string? Can I get that toy’s sound to occur again?” Sutton said, narrating the baby’s actions. “We have to create our own sub-problems. In no way are all possible sub-problems built in.”

He explained that this kind of play, which is found in all types of animals, is not random; instead, it represents a core part of what intelligence is, and it is something that a general AI agent would need to replicate.

“I think this is really an obvious insight. It’s an insight into what our mental life is like. We set some goals. We set problems for ourselves,” Sutton said. “We learned to play soccer, or we learned to ride a bike, we learned to use a foreign language — we set some problems for ourselves, and then we worked on achieving them.”

## The road ahead

To make the implementation of OaK architecture possible, researchers will need to solve the technical challenges of continual learning — how neural networks can learn new things without forgetting old ones — and generating state features from new state features.

“OaK will require reliable continual learning,” Sutton said. “We needed to do this for 40 years, literally, 40 years. [And] if you do conventional deep learning it can just fail catastrophically, either [due to forgetting] or loss of plasticity.”

But he added that solutions, such as continual backprop and meta-learning techniques, are beginning to take shape. Still, Sutton claimed that the field isn’t there yet.

“I just want to acknowledge we don’t have it yet, and that’s the principal reason why I can’t show you large scale examples of the OaK architecture,” he said.

Despite these gaps, Sutton remains optimistic that a simple, elegant architecture for a generally intelligent agent remains in reach.

“We have a vision. It’s possible,” he said. “I think it’s possible to imagine achieving AI so that the core architecture [could be] something like five pages of code, [and] not like Windows that takes many books to write it down.”

Sutton added that he felt “The Bitter Lesson” and this new agent architecture would ultimately be vindicated in future textbooks.

“Years from now, we will understand AI, and [part of] the textbooks on AI will [say], ‘Sure, we should build in some good domain knowledge,’” Sutton predicted. “But the [rest will say], you want to grow knowledge, complexity, and conceptual structures in an independent and open-ended way, like we see in the OaK architecture.”

A recording of the talk at MIT has not been made public, but a recording of a similar talk Sutton delivered on the OaK architecture is available online from the Alberta Machine Intelligence Institute.



SAMUEL YUAN—THE TECH

Professor Richard Sutton delivers the Dertouzos Distinguished Lecture in the Kirsch Auditorium (32-123) on Wednesday, May 13, 2026.

els like ChatGPT, they are a “dead end” for superintelligence. Rather, he contends that agents capable of learning “continually” and “from experience” at runtime (when they are deployed) hold the key to true AI. His lecture explored how to do the latter type of learning.

**“Progress eventually arises by the opposing approach based on scaling, computation, by searching, learning.”**

Sutton is currently a professor of computer science at the University of Alberta. He won the ACM Turing Award in 2024, and his publications have more than 180,000 citations.

He is also the author of “The Bitter Lesson,” an influential essay on historical trends in AI that has informed how many researchers think about their work. In the essay, Sutton argues that models that scale with computing power ultimately perform much better than models that use knowledge programmed in by researchers.

that respects “the bitter lesson” — namely, an architecture that minimizes the amount of human knowledge built in and instead scales intelligence from experience.

“My quest is to design an AI agent’s mind that is general, domain-independent, contains nothing specific to the world, and learns from experience,” Sutton explained. “An intelligent agent has to be able to tell herself that it’s doing well.”

His aversion to “domain knowledge” comes directly from the historical trends in models for chess and vision that he documented in “The Bitter Lesson.” For instance, he noted that vision models that learned their own image processing strategies performed better than models where humans programmed skills like edge detection.

“In the short term, it is personally satisfying to the person building in his knowledge to his agent,” Sutton said. “But in the long run, this building-in approach plateaus and even inhibits further progress. Progress eventually arises by the opposing approach based on scaling, computation, by searching, learning.”

LLMs are both an example and counterexample to his essay: while they scale on massive computation, they also rely on hu-

**ARTS WANTS YOU**

[tt-join@mit.edu](mailto:tt-join@mit.edu)

# Biz pays the bills

Join the Business Department of *The Tech* and earn a commission!

Email [tt-join@mit.edu](mailto:tt-join@mit.edu)

# Residents of predominantly Black and Latino neighborhoods are about four times more likely to get hit by a car while walking or biking in Boston

Researchers from Boston Emergency Medical Services and MIT Urban Studies and Planning analyzed ambulance data to give policymakers more options for targeted interventions

By Veronika Moroz  
SCIENCE EDITOR

Anyone who's ever walked around Boston or looked at a map of car crashes in Massachusetts knows that when you cross the street in urban areas, you should look both ways like your life depends on it. However, organizing pedestrian traffic injury data by victim demographics reveals a story that goes much deeper than basic road safety.

According to a paper published in *Cities & Health* last summer, people living in predominantly Black and Latino neighborhoods are about four times more likely to be hit by a car while walking or biking in Boston than their counterparts living in predominantly white neighborhoods. This risk of being hit by a car, which the authors of the paper call "mobility risk," is elevated for people living in predominantly Black and Latino neighborhoods both when they're close to home and in other parts of Boston.

**"It wasn't surprising that we found something, but [what] was surprising [was] the extent of what we found."**

"It's not quite proving that the sun rises in the east, but it's also not too much more surprising than that great revelation," observed civil rights and transportation journalist Robin Washington. When he lived in Boston, Washington wrote about transportation for his *Roads Scholar* column at the *Boston Herald*.

"The obvious factor is that people of color own fewer cars," Washington said. A 2019 National Equity Atlas study found that 17% of Black households don't own a car, compared to only 6% of white households. Black households are also more likely to be financially burdened by vehicle ownership, with Black households in poverty spending over \$1,000 dollars more per car than their white peers.

Without a car, commuting can be difficult and considerably expensive, forcing those who don't have access to public transportation to walk to work or school every day. The length of these commutes and the times they occur — including early in the morning and late at night, when it might be dark — puts walkers and bikers at a higher risk. Worse, rising housing prices in urban areas may force people to seek more affordable homes in the outskirts of the city they work in, creating a longer walking commute that increases their exposure to questionable driving.

The problem is compounded by the fact that people who can't afford to drive might need to spend a bigger fraction of their income on medical care if they do get hurt. And as cars get larger, injuries become more severe, according to Urban Studies and Planning Professor Justin Steil, one of the authors of the mobility risk paper. Larger cars "have more mass, more momentum, are slower to decelerate, and also a higher front angle, which can lead to worse damages to the core and to the head," he explained.

As a paramedic and researcher in residence with Boston Emergency Medical Services (Boston EMS), Steil has often treated pedestrians and cyclists who've been hit by cars. He also has a deeply personal reason for caring about safe streets: for the past nine years, Steil has been running-commuting his daughters to school in a jogging stroller. One day, he was walking across the crosswalk with

his daughter in the stroller when a car went through the red light at full speed. If he had been standing even a little bit closer, Steil recalled, it "would have killed her." Both father and daughter emerged unscathed, but that close call serves as a painful reminder of the health risks associated with having to walk or bike long distances.

To analyze traffic accident demographics, Steil teamed up with Mark Brennan SM '16 PD '20 PhD '20 and Yonah Freemark MCP '13 SM '13 PhD '20, as well as Boston EMS Chief of Staff Laura Segal, now-retired Boston EMS Deputy Superintendent James Salvia, Deputy Chief of Staff Erin Serino J.D., and Boston University Professor of Emergency Medicine and Boston EMS medical director Sophia Dyer. However, the story of this particular project actually began in January 2016, when Boston EMS began putting notes on pedestrian and cyclist traffic accidents in what is now a large database.

"Imagine the first row in that dataset," Brennan, the corresponding author of the mobility risk paper, exclaimed. "You have to really be playing a data-driven long game to think it's worthwhile to enter that first row basically a decade ago."

#### Diving into the data

When paramedics arrive at a car crash scene, they ask questions to figure out what the patient needs: *What's your name? Where do you live? Do you have any pre-existing conditions?* In Boston, paramedics write up the health-relevant data in a care report, which is uploaded to the central EMS facility, where someone types the patient's age, gender, and residential address into a free-form text box for a new entry in the traffic injury database.

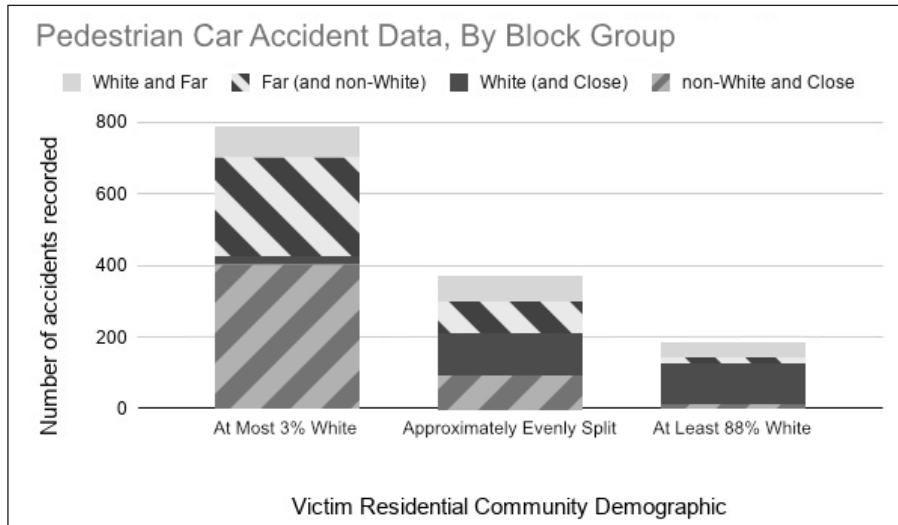
Though U.S. cities have been analyzing their car crash data for years to inform transportation policy, paramedics don't explicitly write down what patients look like, so this is the first time it's been possible to analyze what the patient's race could be.

"This would not even be a project if it wasn't for the hard, quiet work of people over the past decade making sure that this dataset is good," Brennan said.

**"I think MIT is playing a positive role in doing what it does best, which is cast[ing] a data-driven light on factors that society and government need to respond to."**

Since all the residential information is entered as unstructured text data and can take on many forms with varying degrees of specificity, picking out the residential neighborhoods for thousands of complex data points took a lot of trial and error. To determine the neighborhood demographics of each approximate home address, the researchers turned to regions called block groups, which the U.S. Census defines through physical landmarks like rivers, highways, factories, and main streets.

Block groups are small (Boston alone has about 550), so when researchers zero in on one, they are looking at a community that is specific enough to make some generalizations. Brennan, who worked with undergraduate students during his PhD as a teaching assistant for several classes, offered a familiar example: "If we look at the MIT dorms and its



VERONIKA MOROZ—THE TECH

A bar chart of pedestrian car accidents using data from the *Cities & Health* study, showing a big difference in the number of people hit by cars between Boston's whitest and least-white neighborhoods. Neighborhoods with intermediate racial breakdowns have been omitted but can be found in the original paper.

one or two block groups, everybody in them is not going to be making much money, probably doesn't have a car, and probably shops at Trader Joe's," he said.

**"Investing in streets where crashes happen is time-tested, smart, needs to happen, and does happen in Boston at really substantial levels."**

By picking through the entries in the EMS database containing unstructured notes and medical information like patients' residential addresses, the researchers were able to identify the block group for 19 out of every 20 pedestrian or cyclist victims of traffic incidents. They then used demographic data from the U.S. Census to piece together what the victims' block groups looked like.

To Brennan, the size of the disparity between majority Black and Latino block groups and majority white block groups offered an inflection point. "All the health equity and public policy and social science research tells us that this issue is probably at play," he said. "It wasn't surprising that we found something, but [what] was surprising [was] the extent of what we found."

#### Offering a new tool

According to MIT Transit Research Consortium Director and former assistant Massachusetts attorney general Jim Aloisi, the type of analysis carried out by the mobility risk researchers matches up with Boston's push for data-driven public policy. "Under Mayor [Michelle] Wu, there's been a focus on trying to figure out how to leverage data better," Aloisi said, later adding, "I think MIT is playing a positive role in doing what it does best, which is cast[ing] a data-driven light on factors that society and government need to respond to."

However, both Aloisi and Washington warn that truly addressing this problem requires more detailed research. For example, the study couldn't explain why residents of neighborhoods home to predominantly people of color are more likely to be hit by a car. Though Steil, Brennan, Aloisi, and Washington all suspect that class dynamics and walking distance are important factors, other reasons, like quality of traffic signals or street design, might play a role as well. The paper

also didn't compare across communities of color in Boston with different levels of traffic density or driving speed. Without this information, it's difficult to get a full picture of what makes walking so dangerous for people from these communities.

Though Brennan is now an Assistant Professor of Operations Management at Rutgers University, he and Steil have continued working on follow-up papers, including one describing the project's impact on transportation safety in Boston.

"On the policy level, I think one of the useful aspects of [the original] paper is it shows that it's really important to address where crashes are happening," Brennan said, "but it also reminds us that we have other tools in the policy toolbox that could be well-suited to trying to improve health by residential neighborhood." For instance, handing out free bicycle helmets to communities whose residents are more likely to get hit by a car while biking could prevent serious injuries.

"And to be clear, investing in streets where crashes happen is time-tested, smart, needs to happen, and does happen in Boston at really substantial levels," Brennan explained. "This just gives policymakers another degree of freedom."

In a follow-up paper published last month, the researchers explained how reorganizing their data highlighted that children in Boston's poorest areas are disproportionately likely to get hit by a car while walking or biking to school. The findings helped Boston's Department of Transportation refocus their efforts on educating students about pedestrian and bike safety, launching six projects and organizing outreach programs in seven schools.

It's a small victory, but interventions like these are an important step towards reducing pedestrian and cyclist injuries. For Steil, this reduction is just as possible as past interventions, such as using seatbelts to make passengers safer or building better fire alarm systems to keep people safe from fires. "As we improve the infrastructure of streets for pedestrians and cyclists, hopefully, we can reduce injuries from people's mobility," Steil said.

Through collaboration across many city departments, detailed analysis, and data-driven interventions, mobility risk research from MIT is becoming part of the story of battling the racial disparity in traffic injuries. Though progress so far seems promising, the consequences of this research will depend on which people see it and what they do with it.

DO YOU LIKE DOODLING DURING CLASS? ARE YOUR PSETS COVERED WITH DRAWINGS? IF SO, BECOME A TECH ILLUSTRATOR!

E-MAIL TT-JOIN@MIT.EDU

ch's MLB CH

By The Tech Sports staff

MLB postseason. In the American League, the Series against Minnesota with ease to advance to the Texas Rangers, recovered from 0-2 against the Tampa Bay Rays. In the National League, the Philadelphia Phillies swept Cincinnati and were hit by Roy Halladay. They face the Atlanta Braves, which every game was decided by a walk-off home run. The Braves claim their league pennant and advance to the World Series, with department bragging rights on

Do you like looking for funny typos? Do you have a knack for finding mistakes? The Tech is looking for copy editors!

E-mail tt-join@mit.edu

# Zachary Abel on finding the factorial of 1/2

Assuming only a pre-calculus math background, the answer circles surprising connections

By Elizabeth Li  
SCIENCE STAFF WRITER

You may recognize the concept of the factorial of a nonnegative integer  $n$ , denoted as  $n!$  :=  $n \cdot (n - 1) \cdot (n - 2) \cdot \dots \cdot 2 \cdot 1$ , from an introductory combinatorics or probability class. For instance, the number of ways to shuffle a standard 52-card deck is  $52!$  — 52 choices for the first card, multiplied by 51 (52 minus the first card we already chose) for the second card, and so on. But it turns out that it's also possible to compute the factorial for some non-integers.

On April 28, 2026, the Undergraduate Math Association (UMA) invited Zachary Abel PhD '16 to speak on finding the factorial of 1/2. This talk, originally planned at an advanced high school level for students attending the Canada/USA Mathcamp, provided an innovative perspective on the topic: it uses only a fundamental knowledge of functions without calculus, analysis, or ideas from complex analysis like the Gamma function  $\Gamma(z)$ , a continuous extension of the factorial function that takes a domain of positive real numbers instead of nonnegative integers.

Since obtaining his graduate degree from the Department of Mathematics in 2016, Abel has worked as a Principal Lecturer in the MIT Computer Science and Artificial Intelligence Lab (CSAIL). His research in computational geometry lies in the intersection of discrete geometry and algorithms, with applications to origami and reconfiguration algorithms.

Throughout the talk, Abel provided animations to present every key aspect of the argument without losing any details of its nuance. More importantly, by defining what kind of math could be used in the talk, Abels indirectly demonstrated the nature of mathematical research, which often involves many good ideas and attempts rather than advanced theory.

### Quest for the factorial of 1/2

The recursive form of the factorial formula  $n! = n \cdot (n - 1)!$  can still be applied to any positive half-integer, assuming that some closed-form expression  $c$  exists that is exactly the value of  $(1/2)!$ . For example, we can write  $(3/2)! = (3/2) \cdot c = (3/2) \cdot (1/2)!$ .

This discrete formula for the factorial unfortunately breaks down when we consider  $(1/2)!$  itself, as numbers in the factorial expansion cannot go into negative numbers (which  $(1/2 - 1)!$  would require). Consequently, this problem calls for a different approach. Abel proposed plotting the function  $f(x) = \ln(x!)$  over two sets of points, the integers and the

half-integers, before adjusting  $c$  so the two sets of points interpolate to lie on one smooth function (see Figure 1). In this case, the graph is convex (meaning that it has a "U" shape), which guarantees its continuity.

Convexity is important because it implies that the slope increases as the input increases. Therefore, for any half-integer point  $(m, f(m))$  where  $m = (2n + 1)/2$  such that  $n$  a nonnegative integer, we can simply compare the slope between this half-integer point and points adjacent to it to get an upper and lower bound on  $c$  (see Figure 2).

$$\frac{f(m) - f(n)}{1/2} \leq \frac{f(n+1) - f(m)}{1/2}$$

$$\frac{f(m) - f(n)}{1/2} \geq \frac{f(n) - f(m-1)}{1/2}$$

ELIZABETH LI—THE TECH

Figure 2. Slope equations that produce the upper and lower bounds of  $c$  respectively.

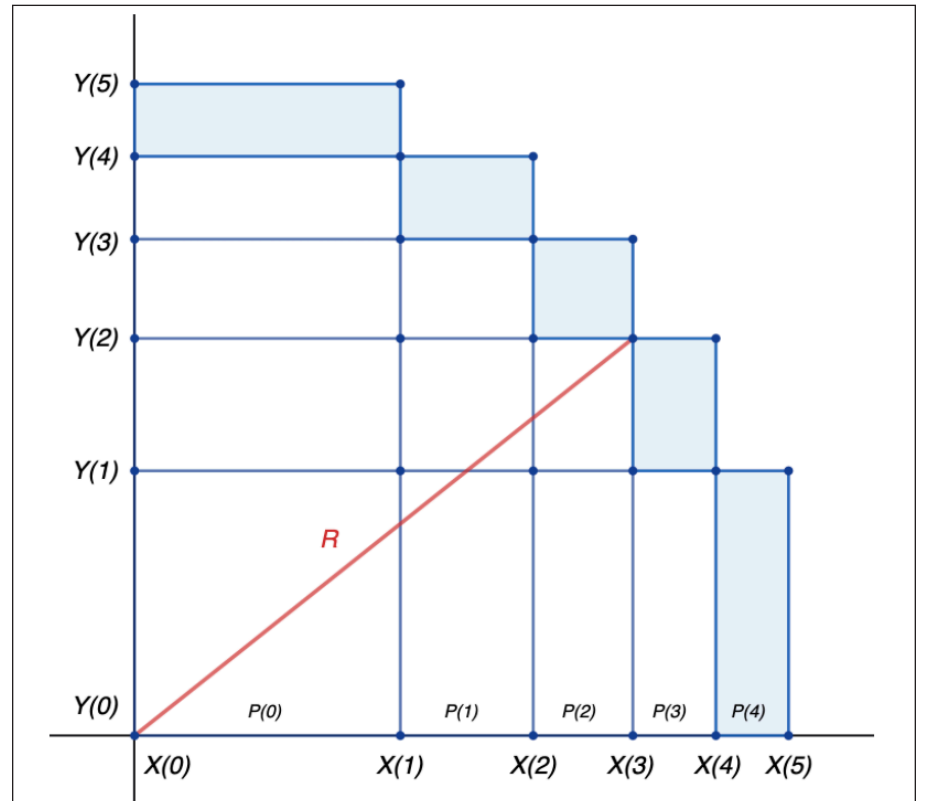
As  $n$  approaches infinity, these two bounds converge to the exact value of  $c$ . However, this calculation-intensive approach, despite producing the right answer and providing some early intuition about the goal of this problem, requires some use of the Central Limit Theorem (typically taught in a probability class), which is material beyond the assumed background of this talk. This is where Abel pivoted to finding the limit through a reinterpretation of the bounds with a probabilistic game.

Imagine a bag with one blue ball and one red ball. On each turn, you pick a ball with replacement from the bag, note the color of the ball you picked, and then add two identical balls of the same color into the bag. This can continue for any number of draws, where balls of the same color are indistinguishable.

For example, suppose you want to draw two red balls consecutively. Drawing the first red ball has probability 1/2, and drawing the second red ball (after replacing the ball you drew on the first round and adding two more red balls to the bag) is 3/4, so the total probability is  $(1/2) \cdot (3/4)$ .

In fact, the probability of drawing  $n$  red balls consecutively is defined as  $P(n) = (1/2) \cdot (3/4) \cdot \dots \cdot (2n-1)/(2n)$ . The bounds we have from earlier (see Figure 2) allows us to approximate  $c \approx 1 / (2 \sqrt{n} \cdot P(n))$  by simply manipulating the expression.

To visualize the problem, Abel defined a grid where the width of each box was exactly



ELIZABETH LI—THE TECH

Figure 3. The quarter circle visualization for the calculation of  $c$ .

$P(0) = 1, P(1), \dots, P(n)$  (see Figure 3). Here, the difference between consecutive increments  $X(n+1) - X(n)$  by definition equals  $P(n)$ , so we can relate the two by  $X(n) = 2n \cdot P(n)$ . Define  $Y(n)$  in the same way.

Now, using the Pythagorean Theorem, we can find the radius  $R$ , which is the hypotenuse of a triangle with sides  $X(k)$  and  $X(n-k)$ . Specifically,  $R \approx \sqrt{n} / c$ .

In terms of the probabilistic game, the area of the boxes on each diagonal (the highlighted boxes are on the fifth diagonal) is the sum of the probabilities of all possible combinations of red and blue balls drawn given a fixed number of total draws. Naturally, it sums to one.

Therefore, these two ways of calculating the area of the quarter circle, one using the approximate radius  $R$  and the other as a characteristic of the game we have defined, are set to be equal to solve for  $c$ , which is of course,  $(1/2)!$ .

### An expert in engaging the audience

Abel, who is also a longtime lecturer of 6.1200 (Mathematics for Computer Science), is no stranger to giving talks to math enthusiasts. From his experience teaching, he finds that visualizations that clearly demonstrate conceptual properties will instantly capture more attention.

"Honestly, anything to break the monotony of writing on a chalkboard," he quipped.

A memorable demonstration that Abel always does for his 6.1200 students is performing a merge sort with stuffed animals of various heights, which he brings from home. By first arranging randomly in a line and sorting them, "the movement [of] doing an exchanging in merge sort and seeing the stuffed animals switch positions, instead of erasing and writing a new number on the board, makes the learning experience more visceral," Abel said.

While this was Abel's first time speaking as part of the UMA Lecture Series, the organization has invited over half a dozen speakers over the course of the past semester. UMA Academic Committee Co-Chairs Joy Ren '28 and Tiffany Zhang '28 shed more light on the behind-the-scenes organizational process.

"I think it's a really cool opportunity for students to be able to gain a little insight into the current research questions of the field, be-

cause it's quite different from what they could learn in an undergraduate class or project," Ren said.

For those interested in learning more about what professors are working on (or in doing research in particular), there are further opportunities beyond these biweekly lectures. On May 1, the UMA hosted a faculty dinner with Shen Shen SM '14 PhD '20 PD '21, a lecturer in the EECS department at MIT whose research specializes in optimization and robotics. This event, which arose out of a prior talk that Shen gave at the UMA, was open to any students interested in having a more in-depth conversation with the speaker.

As to how the speakers are selected, those first considered are usually former or current professors who have taught classes that UMA staff members have taken or are taking. To encourage the diversity of topics and lecturers, there is ideally a one-semester gap before the same speaker is invited again.

With regards to the noticeable increase in machine learning and artificial intelligence topics, Zhang noted that the potential bias could have arisen from many of the UMA staff being double majors in Course 18 and Course 6. "All the people we contact are in Course 6 or Course 6-adjacent math classes, so in that sense, the speakers would inevitably talk more about AI," Zhang explained. "We usually try to prioritize people who are not in Course 6, but we also want to make sure we have as many speakers as possible."

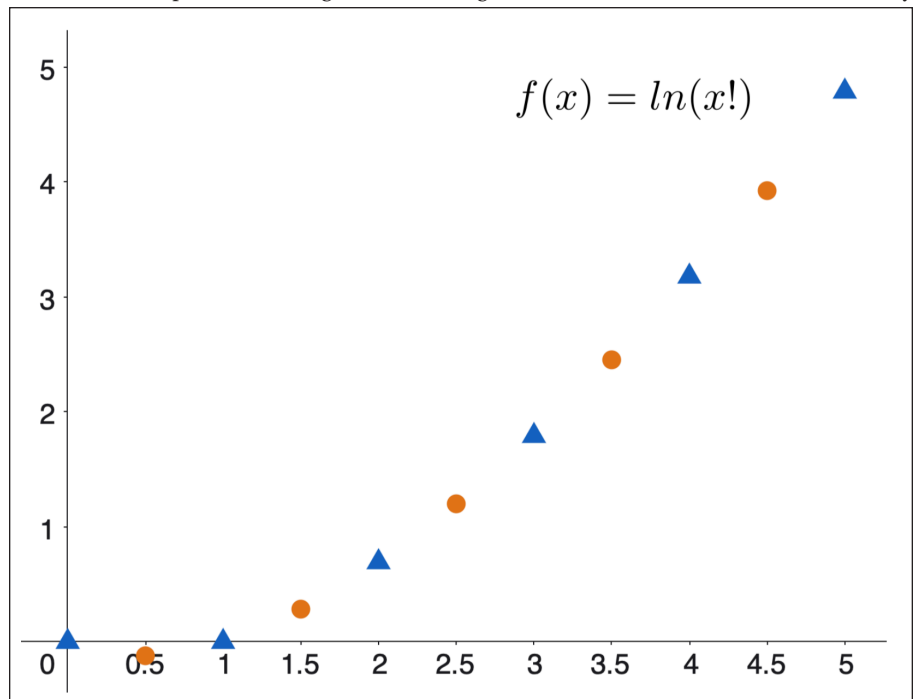
Given the diversity and frequency of UMA professor talks, those looking to enrich their math experience outside of class or satisfy their curiosity about interesting math facts may find these events worthwhile. Updates about additional talks will be announced by the UMA throughout the next academic year.

$$\text{Area} \approx \frac{\pi}{4} R^2 = \frac{\pi}{4} \left( \frac{\sqrt{n}}{c} \right)^2 = n$$

$$c = \left( \frac{1}{2} \right)! = \frac{\sqrt{\pi}}{2}$$

ELIZABETH LI—THE TECH

Figure 4. Using the area of the quarter circle to find the value of  $c$ .



ELIZABETH LI—THE TECH

Figure 1.  $f(x)$  plotted over nonnegative integers (blue triangles) and positive half-integers (orange circles).

Want to see these teams battle it out in person?

Join The Tech!  
tt-sports-editors@mit.edu

It's Dangerous to Go Alone!

Take This.  
tt-join@mit.edu

# From cell biology to tessellations

Raymond Goldstein blurs the line between math and biology in the 2026 Simons Lectures

By Joy Xie

If you stepped foot into room 2-190 between April 27–29, you would find yourself in the middle of an immersive discussion that jumped between disciplines, taking you from swimming microorganisms to tessellations. At the front of the lecture hall stood the second speaker of the Simons Lectures, Professor Raymond Goldstein '83 of the University of Cambridge, bridging the gap between pure math, biology, and physics.

Goldstein gave three lectures in total: “Stirring Tails of Evolution,” “The Geometry of Multicellular Life,” and “Decision-Making Without a Brain.” The topics of these lectures were interdisciplinary. On one slide, he showed attendees videos of spherical cells moving and inverting themselves; on the next, he pointed to a model of a phase oscillator — an oscillating system, much like the classic spring on a mass — and its associated differential equations. Further into the lectures, he explained how tessellations in pure math play a role in the geometry of how cells distributed themselves.

**Although miniscule in size, these appendages have more than just miniscule effects.**

When asked about why the intersection of biology, applied math, and physics interests him, Goldstein pointed to the relatively unstudied nature of biology compared to mathematics.

“In mathematics, there are plenty of people who will have as their life’s work proving things that others have conjectured,” he said. On the other hand, biology is “so open compared to so many of the areas in physics that formulating the questions is the most difficult and challenging thing.”

The Simons Lectures Series, financially supported by MIT alumnus, mathematician, and investor Jim Simons '58, is held every spring at the Institute, featuring one week of lectures in pure mathematics and one week in applied mathematics. Past topics in pure math include sphere packing and graph theory, while past topics in applied math include quantum complexity theory and the mathematics of private data analysis. Goldstein, who graduated from MIT with a double major in chemistry and physics in 1983, is the first lecturer since 2006 to cover biological systems.

**“So, it’s this kind of back and forth between theory and experiment, which is the scientific method,” Goldstein said. “That’s what we use.”**

He’s particularly interested in problems related to non-linear systems and complexity. One such example concerns flagella, micrometers-long lash-like appendages that help organisms swim. When green algae swim, their flagella undergo a phenomenon in which they synchronize and desynchronize.

Although miniscule in size, these appendages have more than just miniscule effects. In fact, the spinning direction of a different type of appendage, the hair-like cilia, is what causes the placement of the heart on the left side of the body for most humans and other vertebrates. Goldstein said that researchers confirmed this by taking developing mice embryos and manually swirling the fluid in the other direction, and *voilà* — the mice developed with their hearts on the right sides of their body.

Researchers noticed the appendages synchronized most of the time, like a swimmer’s arms during breaststroke. However, around 10% of the time, there would be durations — called phase slips — where the flagella briefly fell into an asynchronous swimming pattern, and then resynchronized. Even more rarely, around 5% of the time, the flagella could oscillate at different frequencies altogether, before going back into their synchronous swimming style. Goldstein’s goal is to solve the mystery of why the flagella behave this way.

The behavior of the flagella involves fluid dynamics and complex systems — systems that are composed of many interacting components and are hard to predict based on individual pieces. Goldstein approaches this complex problem with a mix of a theoretical and an experimental approach. He combines a physicist’s reductionist perspective of looking for the simplest physical or mathematical realization of the system — a lesson that was ingrained in him in his undergraduate studies at MIT — with a biologist’s experiments and observations.

“It’s a matter, partly, of doing experiments, sometimes without a clear hypothesis, but just saying, let me see for myself what’s going on,” Goldstein said. “There’s no substitute for staring through the microscope at something.”

Goldstein compared balancing theory and experimentation to painting. “If you make a painting, you may have a sketch of where things are roughly on the canvas,” he explained. “And as you put material down, you end up refining it and fiddling with things and going back over things.”

“So, it’s this kind of back and forth between theory and experiment, which is the scientific method,” Goldstein said. “That’s what we use.”

This approach was very evident in Goldstein’s research on flagella synchronization. First, he connected the swimming motion of the flagella to a model of two waving sheets synchronized in a fluid, originally conceived by British physicist G.I. Taylor in the 1950s to

describe the swimming of microorganisms. By analyzing models where the sheets had separation distances from one another, Goldstein’s team deduced that energy dissipation was minimized when the sheets were waving in phase — in other words, the synchronizing of the flagella could be nature’s way of minimizing energy loss in the fluid.

**The most interesting results come from deliberately blurring these lines.**

Next, Goldstein conducted his own experiments using a high-speed camera to film the beating of the flagella in both the original organism and a mutant organism that displayed antiphase synchronization; instead of the flagella moving in a breaststroke motion, they moved in a freestyle motion. These experiments, combined with analysis of another physical model, showed that the synchronization was affected by another factor: the internal structure of the flagella. The wild type organism had its two flagella essentially connected on the inside of the organism — as Goldstein put it, elastically coupled — while the mutant type did not.

Goldstein’s lecture not only gave attendees valuable insight into the intersection of the world of math, physics, and biology, but also connected the research of his lab in Cambridge, England, to the attendees in Cambridge, Massachusetts halfway across the world.

In academia, it can often feel like there are rigid barriers between different fields, where the “Department of Mathematics” lives not only in name but also physically apart from the “Department of Biology.” Goldstein’s research, however, is a reminder that sometimes, the most interesting results come from deliberately blurring these lines.

**Do you have a question for President Kornbluth?**

Join *The Tech’s* news department!  
tt-join@mit.edu

Volume VVV, Number NNNN

**Want a Front Page Byline?**

Join News at The Tech.#

Join at [tt-join@mit.edu](mailto:tt-join@mit.edu)  
HOPE TO SEE YOU THERE

Etiam imperdiet pellentesque tellus, at ornare sem tincidunt vel. Morbi porta tempus sem, vitae convallis augue feugiat non. Mauris ut tincidunt metus, vitae consequat vel laoreet mauris. Pellentesque eu auctor ante. Integer egestas nulla orci. Maecenas ultrices nisl orci, fringilla congue libero eleifend vel. Suspendisse potenti. Phasellus consequat eros, sed sodales risus mauris iaculis eros, sed sodales

Do you like **telling stories** about your life?



Are you dying to share your **latest discoveries?**



Join **Campus Life @ The Tech** and share your stories with our 15,000+ readers!

E-mail [tt-join@mit.edu](mailto:tt-join@mit.edu)



A WEBCOMIC OF ROMANCE, SARCASM, MATH, AND LANGUAGE

by Randall Munroe

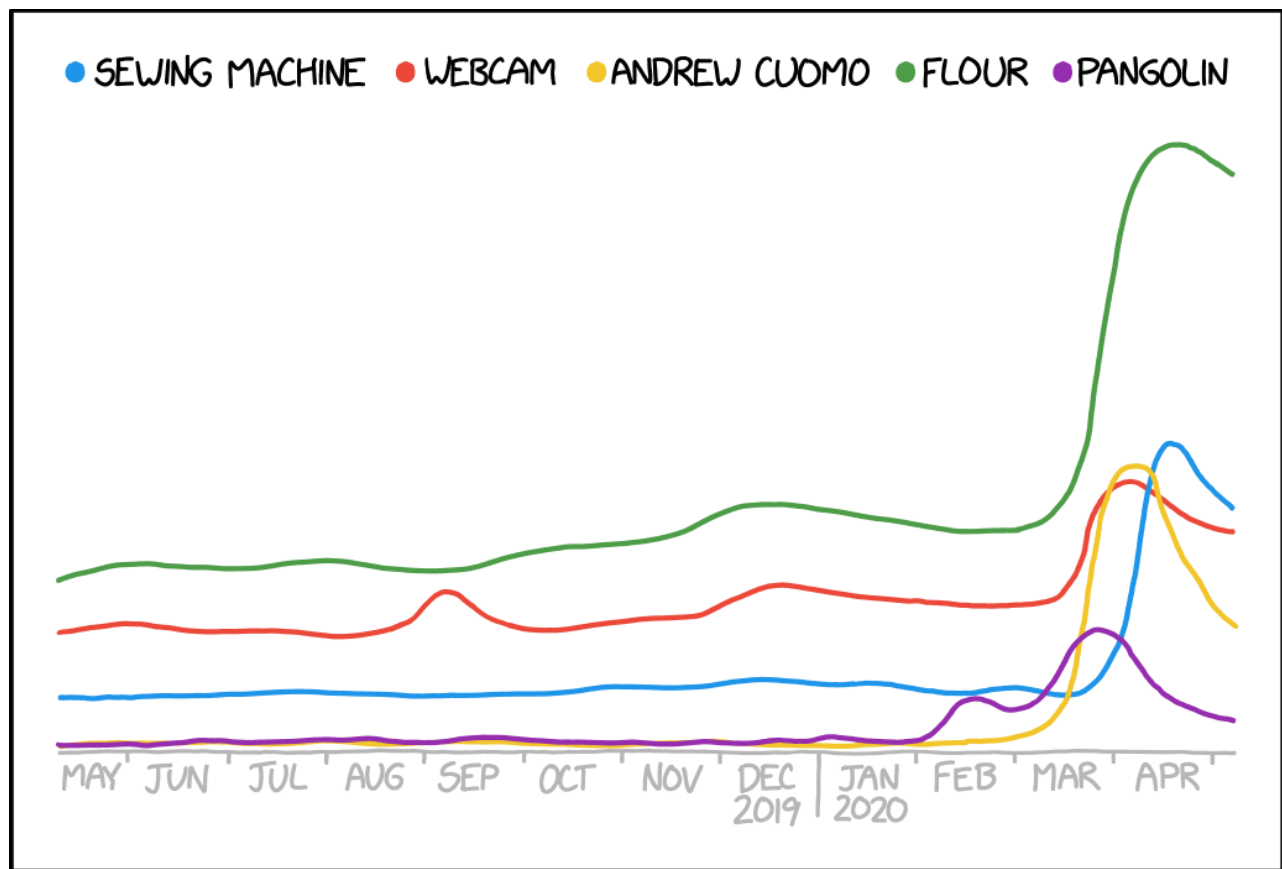
### [1752] Interplanetary Experience

#### WHERE TO GO ON EARTH TO GET THE INTERPLANETARY EXPLORER EXPERIENCE

- PLUTO, MOON (NIGHT) — MT. EVEREST AT NIGHT
- MERCURY (NIGHT) — MT. EVEREST AT NOON UNDER A TANNING LAMP
- MOON (DAY) — A LAVA FLOW ON A VOLCANO AT NOON
- MERCURY (DAY) — A HEAT-SHRINK WETSUIT IN A BLAST FURNACE
- VENUS — MT. EVEREST AT SUNSET
- MARS — WAIST-DEEP IN AN OUTGASSING SIBERIAN SWAMP
- TITAN — JUMPING FROM A HIGH-ALTITUDE BALLOON OVER AN ANTARCTIC OCEAN WINTER STORM
- JUPITER-NEPTUNE —

But instead of hitting the ocean, you should land in an overheating hot tub on a sinking cruise ship, sending it crashing through the floor into the burning engine room as the ship goes under.

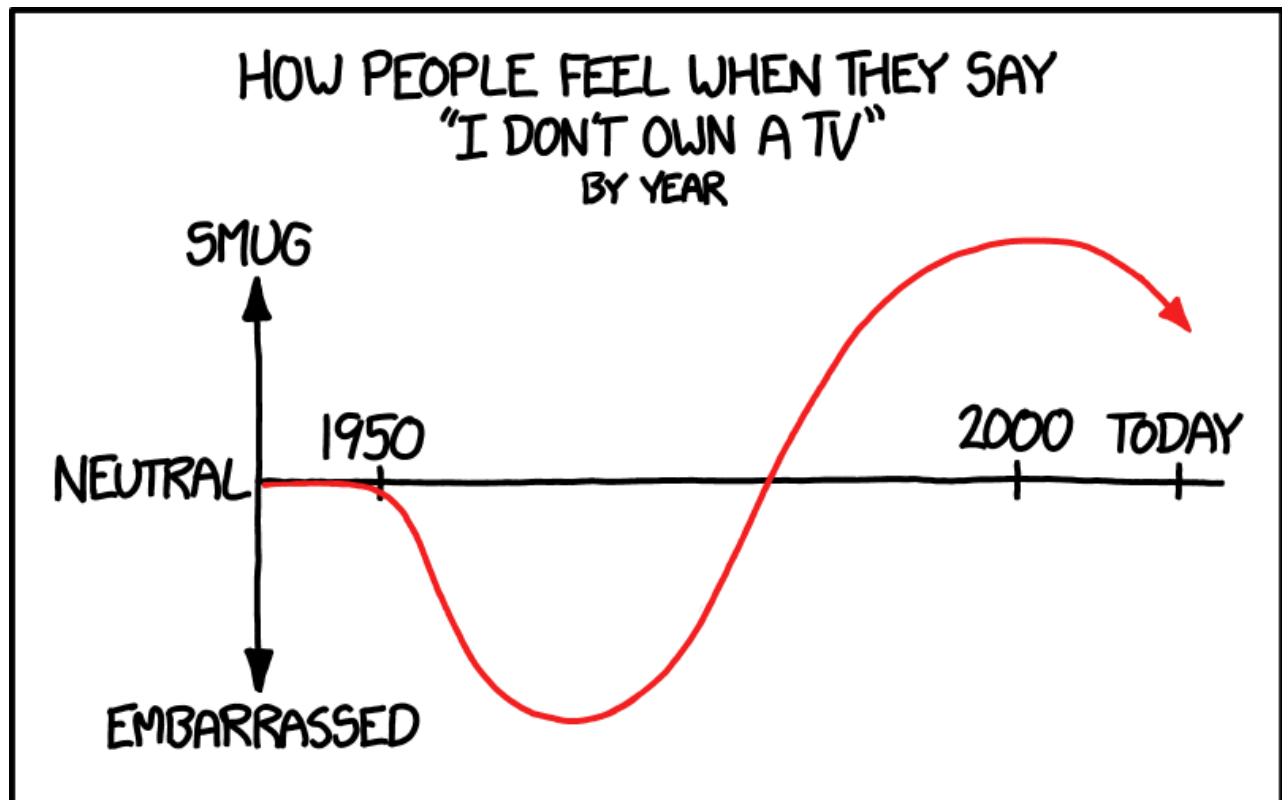
### [2302] 2020 Google Trends



I WANT TO SHOW SOMEONE FROM 2019 THIS GOOGLE TRENDS GRAPH AND WATCH THEM TRY TO GUESS WHAT HAPPENED IN 2020.

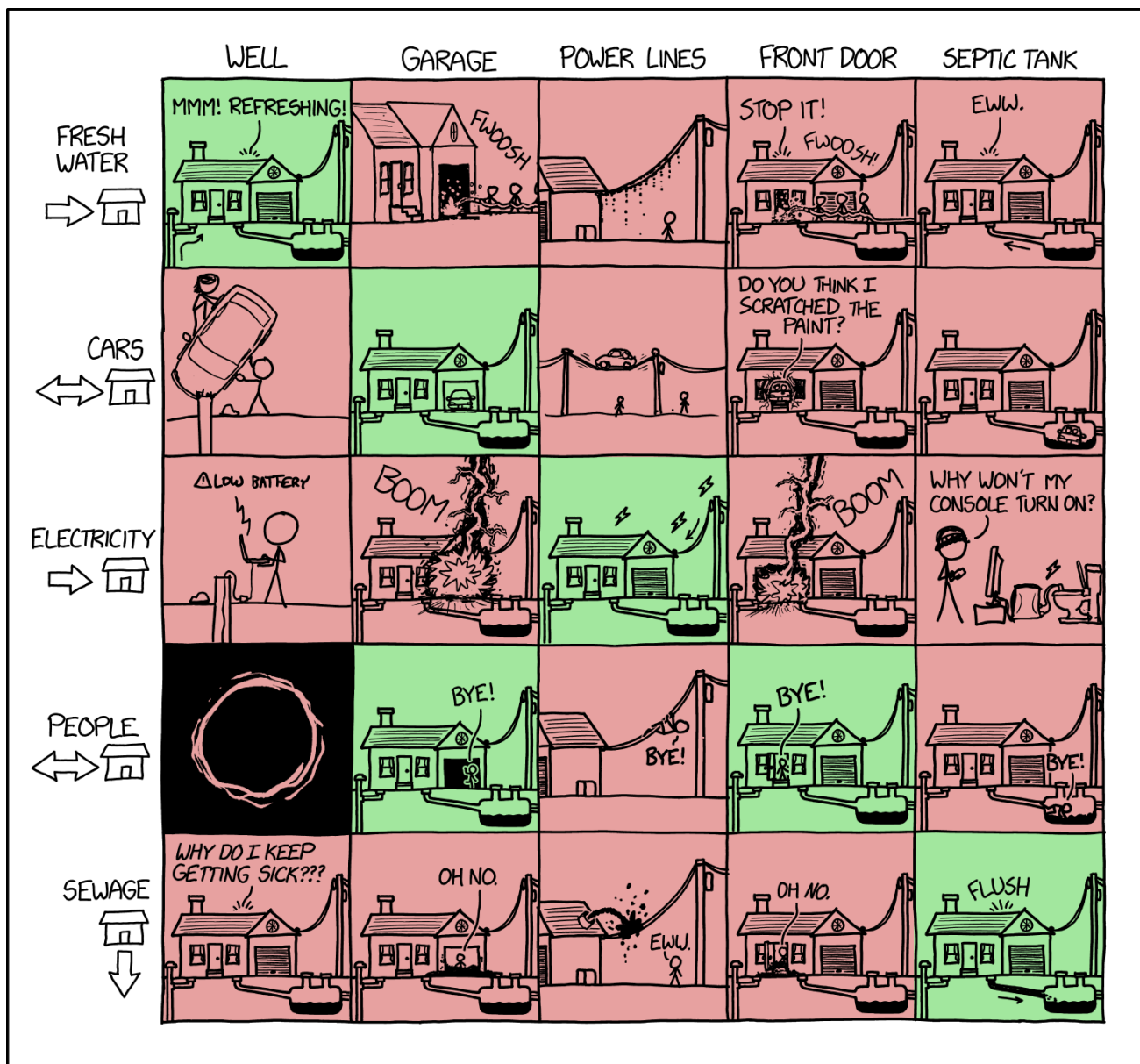
As the 'exotic animals in homemade aprons hosting baking shows' YouTube craze reached its peak in March 2020, Andrew Cuomo announced he was replacing the Statue of Liberty with a bronze pangolin in a chef's hat.

### [1299] I Don't Own a TV



Theory: Smugness is proportional to the negative second derivative of TV ownership rate with respect to time.

### [2963] House Inputs and Outputs



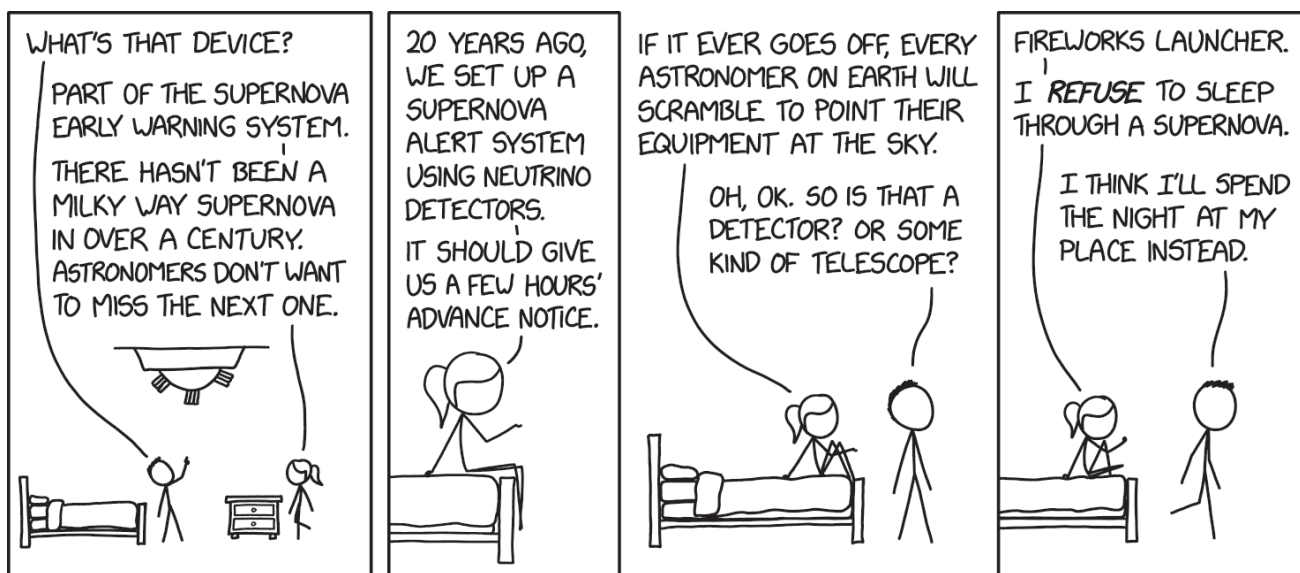
People think power over ethernet is so great, and yet when I try to do water over ethernet everyone yells at me.

### [2480] No, The Other One

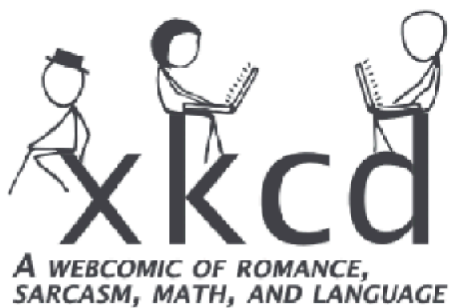


Key West, Virginia is not to be confused with Key, West Virginia.

### [3208] SNEWS



People say setting of fireworks indoors is dangerous, but I looked at their energy release and it's like 10^-40 foe; totally negligible.



by Randall Munroe

From all of us at MIT Professional Education

# CONGRATULATIONS to the Class of 2026!

Wishing you a lifetime of learning  
and a future full of possibility.



## NEVER STOP LEARNING

You've reached an important milestone. Now it's time to build on it. Wherever your path leads, MIT Professional Education offers 100+ high-impact programs designed to help you stay ahead—covering everything from leadership and sustainability to machine learning and AI.



Learn more at  
[professional.mit.edu](https://professional.mit.edu)