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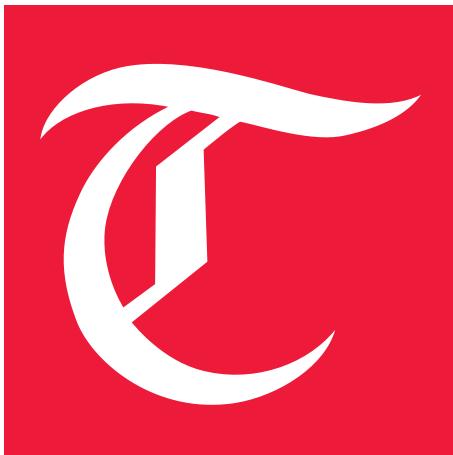
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2022

YEAR IN REVIEW MANAY





Dear readers,

MIT is a champion of progress. As well-intentioned as this ideal is, our community's voices are often left behind in the making of long-term policies. Institutional memory is too short, power too imbalanced, and money too alluring. Likewise, as in any major educational establishment, the bureaucracy is daunting and behaves more like a wall than a means forward. Reflecting on this past year, I see these norms being challenged head-on as we work incessantly to find our voice in the Institute and beyond. 2022 was a year of acknowledging and attempting to overcome barriers, hope and resilience, reunions, and transitions.

This year, barriers included the Building 7 turnstiles, card readers on every locked door, willful ignorance of the relationship of our Institute with the community to which it belongs. When COVID-era closed-campus policies initially seemed permanent, concerned students, faculty, and staff raised their voices to prove otherwise. Whether it be the student-produced MIT: REGRESSIONS or the long-overdue support to Indigenous peoples, our community took steps to acknowledge ignominious aspects of MIT's history.

The voices of our community also brought hope and resilience. The Russian invasion of Ukraine remains an ongoing crisis. Our hearts go out to our community members whose families and homes are affected by this conflict. Students, faculty, and staff continue to demonstrate an unwavering commitment to morality, justice, and human rights. Closer to campus, our graduate students unionized, marking a fundamental shift in the dynamic of student-workers and the MIT administration. Over these past few years, graduate students shared their stories with us at *The Tech*. These stories remind us that their work is inseparable from social justice and that more work remains to be done.

Still recovering from the pandemic's peak, 2022 also observed numerous reunions as we endeavored to restore a sense of normalcy. MIT's first in-person Commencement since 2019 saw not only a celebration of the Class of 2022 but also the return of alums from the Classes of 2020 and 2021. The Class of 2024 recreated their missed Orientation events. Burton Conner reopened its doors, having preserved its distinctive floor cultures through years of renovation. I hope that East Campus will be able to do the same upon its impending closure. These events underscore the unbreakable MIT spirit — the inseparable communities we build as past and present students.

Finally, Volume 142 of *The Tech* oversaw a critical transitional moment for MIT's administration. Cynthia Barnhart PhD '88 returned to leadership as provost. Former President L. Rafael Reif stepped down after leading MIT for over a decade, ushering in Sally Kornbluth as MIT's next president.

I have had the immense privilege and honor to serve as editor in chief of *The Tech* as we sit at the cusp of Institute and global history. Fundamental to who we are as students of the sciences, engineering, and humanities, we will continue to question the world and its social structures. Starting my final semester at MIT is bittersweet. I will deeply miss the connections I have built these past few years, just as I am eager to embark on the next chapter of my life. Having joined The Tech my first semester, it has been a huge part of my life these past four years. My first editorial position as a news editor in 2020 witnessed one of the most tumultuous times in recent history for both MIT and the world. Having written, read, or edited hundreds of articles during my tenure, I have constantly strived to uphold our core belief in lifting the voices of everyone in our community. I hope to have served you well, and I am confident that our next editor in chief will continue to champion this belief.

And hey — if you see me around after graduation, don't be a stranger.

—Wenbo Wu '23 Volume 142 Editor in Chief











VIVIAN'S REFLECTIONS

Il dolce far niente: the art of doing nothing What I miss

By Vivian Hir

I have to admit that I was looking forward to the fall semester a week or two before the first day of classes, as strange as that may sound. I spent my summer doing a chemistry UROP and directing Summer HSSP, an educational program for middle and high school students. Sure, the return of the fall semester meant that I would go back to living a busy and stressful life full of problem sets and midterms, but I believed that my three-month summer break had to come to an end. I didn't mind going to the chemistry lab to work on my UROP, but I wanted to learn by taking classes.

I enjoyed experimenting with cooking new dishes in East Campus during the summer, but I missed eating dinner at French House. I liked that I got to spend a lot more time reading books before going to bed, but I wondered how long I could go on living a solitary life every day. As much as I relished the weekend excursions I went on alone, I missed the random, interesting conversations I had with friends in New House late at night. When I started seeing the new French

House residents move in and other parts of campus coming back to life during FPOP and orientation, I was genuinely excited about the new school year. I couldn't wait to attend department seminars and other special events. I was even happy with my registered classes. Although I had heard 5.13 (Organic Chemistry II) was a hard class, as a Course 5-7, I looked forward to learning more organic chemistry. I didn't find 7.03 (Genetics) as interesting as 5.13, but I was much more willing to learn genetics over a Course 6 class. 17.407 (Chinese Foreign Policy) sounded dry on the surface, but I couldn't think of what other class to take since I was so keen on pursuing an Asian Studies minor with a focus on China. Surely the fall semester wouldn't be as torturous as my freshman spring, a semester in which I did not like any of my classes except for Business Chinese. There would be no more painful statistical mechanics lectures in 5.601 (Thermodynamics) or 6.0001 problem sets that took me a long time to finish. I would not have to sit in the dreadful 26-100 lecture hall and feel lost as the professor wrote complicated equations in 18.03. I was certain that the fall semester would be better than the spring. My unwavering optimism lasted until

the start of October. When midterm season rolled around, my academic well-being took a nosedive. I once had a sense of agency over my schoolwork, but I now felt like the opposite was happening: looming deadlines were controlling me. Not only did I begin to procrastinate on major assignments like lab reports, but I also had trouble motivating myself to study and do work. Within a month, I went from being a bright-eyed and bushy-tailed student to a jaded and cynical one I started questioning what the point of life was when it involved working nonstop for many weeks while the real world didn't evaluate people based on problem sets or midterms. Coupled with my growing doubts about my major and future career plans, I exhibited obvious signs of the sophomore slump without knowing it in the first place. The college life that I experienced in freshman fall no longer felt novel and thrilling. The confidence that I used to have in pursuing research at graduate school unraveled over time as I wondered if other career paths like education or consulting were more suited for me.

Now, caught up in the whirlwind of the hectic school year, I sometimes look back on small yet meaningful memories of my summer that I miss. Summer ended only a few months ago, yet that time now feels so far away and foreign. I miss how my summer days shared the aspect of dolce far niente: an Italian idiom that means 'the sweetness of doing nothing.'

Dolce far niente is a concept that I find hard to embrace during the academic year, even on weekends. While I could devote an entire afternoon or day to exploring places like the Blue Hills Reservation or the Mount Auburn Cemetery on a Saturday, it isn't the same because of the upcoming assignments that swirl around my head. Time spent on long periods of fun means time taken away from doing schoolwork.

For instance, I originally signed up to do apple picking with my club, but after I started to calculate the time it would take me to study for the 5.13 midterm, I decided not to go to the event. While I could have chosen to spend most of Saturday apple picking and Sunday studying, I couldn't bear the thought of having to cram in even more studying into a single day.

While the personal anecdote I used may sound like I am advocating for all work and no play, in reality, I'm not. I know that it is important to have an even balance of work and play, yet I don't know how to cultivate dolce far niente during the semester. Sure, I am captivated by the mystic's mysterious voices at the end of Holst's The Planets as I sit quietly in Symphony Hall. Yes, I live in the moment when I admire the changing colors of leaves as I jog along Memorial Drive. But these periods of relaxation aren't enough and don't feel the same as my summer weekends.

I often reminisce about how I spent my summer afternoons during the weekend, going on spontaneous trips to places outside Boston every week. I miss the rambling walks I took that had no clear destination, with the singular goal of walking for hours and exploring quiet towns from Lincoln to Rockport. I long for the unparalleled stillness I experienced when I walked on peaceful nature trails, from the dense woods of Middlesex Fells to the unspoiled Walden Pond. Even the act of reading a book on the train feels nostalgic, as I think back to the time I leaned my head against the chair and read James Baldwin while the lazy afternoon sun shone on me. I still remember the time when I took a break from reading The Artist of the Floating World and stared outside of the window, watching the golden-green fields whiz by me as the sun started setting.

At that time, I knew that these memories were random yet significant, but I wasn't sure why they felt so important to me. Nothing eventful happened; all I did was wander around with no particular goal and idly relax or let myself get lost in a piece of fiction. Now that I am in the middle of the semester, however, the reasons become much more apparent. It's the magical feeling of time slowing down when I live by *dolce far niente*, taking things one at a time and experiencing my surroundings using my five senses. My current life is now the total opposite: walking in the busy Infinite Corridor, checking my email many times, and the list goes on.

Week after week of hating this neverending cycle of schoolwork, the only solution seems to be a compromise. Constantly avoiding assignments until the last minute is not sustainable, but neither is doing work all the time. Therefore, I have decided that it is in my best interest to have better time management so that I can devote more time to activities I have been putting off, like writing and running. I have been doing things that I find to be fun during the school year, whether it is going to the next Boston Symphony Orchestra (BSO) concert with other classical music enthusiasts or running along the Charles River on a sunny, beautiful day.

These activities bring me closer to dolce far niente, but they somehow can't replace what I did in the summer. I like breathing in and out as I run and see the Boston skyline in front of me, but I long for the slow, steady long walks in unfamiliar places. I love the rare state my mind enters when I listen to a moving piece at BSO, but it is different from the mental clarity I gain from being in nature that I miss. Maybe it's the ability to press pause on my life and not live under time pressure that I miss the most. So I still yearn for the Italian lifestyle of dolce far niente - the act of simply doing nothing but being present and relishing the small things in life.

> Originally published in Volume 142, Issue 24 on October 26, 2022.

This past volume, the Campus Life section was filled with vibrant fragments of students' thoughts and memories. From graduating seniors who just needed to write a piece to You (whomever You may have been), to newly-anointed sophomores learning how to do nothing, *The Tech* has had the fortunate opportunity to host voices from across MIT's campus. These voices can hardly be said to fill every nook and cranny of the Infinite's echoing halls, but together with stories of fear, loneliness, happiness, and confusion,

we hope that these articles have made people feel less alone. Hell, we know they have.

We look forward to what the new year has in store for the Campus Life section under our new editor, Vivian Hir. We look forward to the voices, both new and continued, that will fill these pages, and hope they resonate with you just as they have with us.

> — Paige Bright '24 Volume 142 Campus Life Editor

ARUN'S ADVENTURES

Passport

Why is it so hard



ARUN WONGPROMMOON—THE TECH

Auctioning off my passport for months at a time is very anxiety-inducing.

By Arun Wongprommoon

PRODUCTION EDITOR

> "England Trip?? Spring break"

> "If we do decide to go to Europe/UK, let me know a bit early! I will have to get a visa

Around mid-February, after our initial thoughts of going to England, my friends and I looked up other potential travel destinations and decided we'd rather go to Canada, as it was cheaper. That was when the Catch-22 started. By the time we planned out an itinerary for the Canada trip, ambitious to visit Toronto, Montreal, and Quebec, as opposed to just one city, it was already too late. It was still a month away from spring break, but in the timeframe of visas, this was nothing.

Some people have been surprised to learn that I need a visa to visit the neighbor up north for spring break. At this point, I just assume I need a visa for every country I think of visiting, except for Southeast Asian and East Asian countries. A Thai passport just isn't powerful enough to spontaneously visit another country, and this is what I'll have to live with for the rest of my life.

Initially, feeling hopeful, I thought I might be able to obtain a visa to Canada within one month. I filled out the application, which was eight pages long and similar to a tax form. It wasn't extremely difficult, but I needed to tediously dig up a lot of random information about my life. I gathered documents, including the required detailed itinerary (which was why I couldn't have applied earlier), a history of countries I've been in the past ten years, my bank statements for the past three months, and documentation certifying that I'm residing in the U.S. legally with my student visa. Isn't that quite a pain? Why does a country's government need so much personal information about my life just for me to visit for a few days? I was about to send all of that in and pay the \$185 fee, but went first to check the wait time for a Canadian tourist visa for a person applying from the United States.

That was a whole four months, way past spring break. Simply put, it was impossible for me to get a visa to Canada in time. As such, we had to change our destination for spring break.

So my spring break trip to Puerto Rico was fun. But I still felt bad that after planning and being all hyped up for Canada, I, and the bureaucracy required to move this person across a border, was the bottleneck for where my friends could travel. I felt a bit existential — we're all just flesh and bones, but somehow, this particular body is not permitted to cross a border lmao. It let me down for a while. I complained. I sighed.

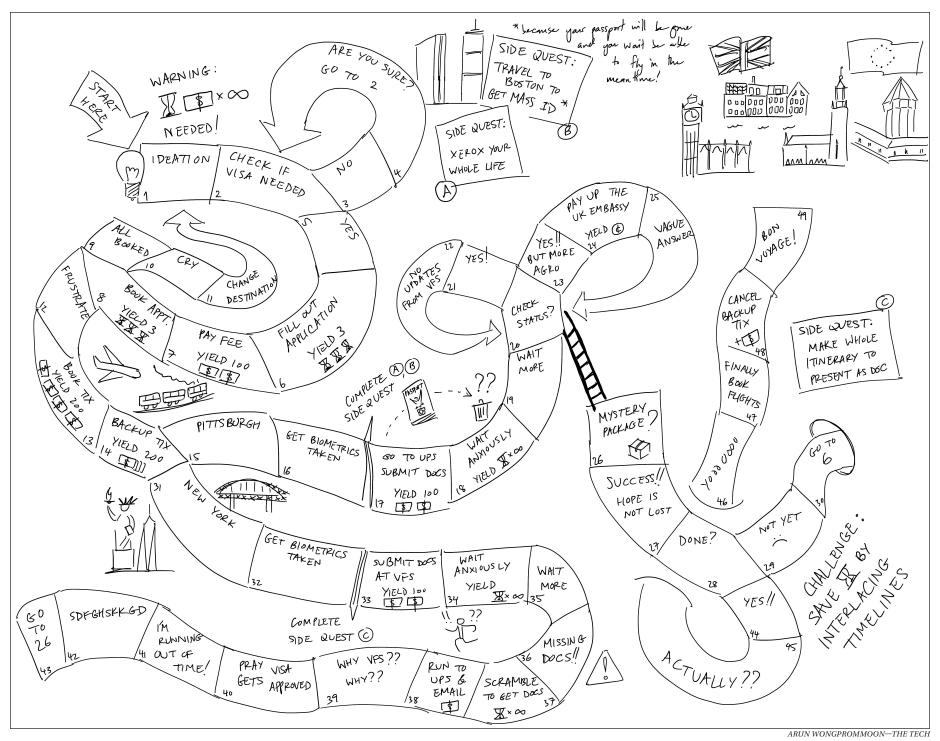
> "You guys are lucky to be born in this country and not have to deal with this

Then it was April. I got my hopes up again with a new plan to go to Europe at the end of the summer. Surely half a year is enough to go through this bureaucracy,

The United Kingdom is not part of the Schengen Area, a conglomerate of countries in Europe that allow free travel between them, and as such, my plans to go visit my brother in Scotland and then hop to mainland Europe required two visas. The U.K. visa is kinder in that it doesn't require a detailed itinerary to apply, and it allows for multiple visits as long as they're within six months. But I had a pretty bad experience with the U.K. visa system when I tried to attend my brother's graduation three years ago, so I set my expectations incredibly low. Given my prior experience, I knew I had to start early.

I started my application mid-April, filled in the 14-pages, and booked an in-person appointment for late May in Pittsburgh, because that was where I could get the earliest appointment. There weren't any more Boston dates left for the rest of the semester, so

Passport, Page R3



To get to go on a trip abroad, complete this game of Bureaucracy.

Passport, from Page R2

I had to take off during a work day in the first week of my internship. A lot of people don't realize you have to appear in person for an appointment to get a visa — they usually assume it's an online application that magically works out, but this isn't the case. The visa application process includes going to a DMV-ish office (sometimes the DMV itself) to get my fingerprints and photo taken. I'm lucky that I found an office within the same city that I was going to be living in for the summer. Some states have a single office to handle this.

- So, after
- \$135 for the U.K. visa application,
- bank statements,
- my student visa to prove I'm here legitimately,
 and \$120 more, apparently for this third
- and \$120 more, apparently for this third party company VFS Global, to assist me with sending my documents to the U.K. Embassy in New York and back to Pittsburgh,

I dropped off my passport at a UPS store in Pittsburgh right after my biometric appointment in late May, and off it went. One ding of a notification from VFS Global came after Memorial Day weekend, to tell me my documents were now at U.K. Visas and Immigration.

And that was the last time I heard from VFS Global.

See, the visa application process is incredibly opaque and untrackable, even with these companies advertising trackability. Why can't I see any queue or updates regarding my most precious possession, my passport? Even concert tickets have this figured out way better — this is 2022, right?! This was the most information I had about how long the process was going to take:

Standard visitor visa applications are currently taking on average 6 weeks to process. We are working hard to process applications to get back to the 3-week service standard.

You should get a decision on your visa within 3 weeks once you attend your appointment at the visa application centre... [1]

I read this and was filled with anger. I wish it wasn't so hard to move this person that longs to travel from one place to another. After calming down, I told myself:

At least it isn't 124 days.

What could I do other than praying that my passport would come back soon, just so that I could repeat this whole process for the Schengen visa? There was no time to waste, though — I started my application for the Schengen visa right after I sent off my passport, *before* my passport came back to me, and booked an appointment, playing with the risk that I might not have my passport in time for the appointment. The Schengen Area visa has to be applied for through the main country of destination, so I filled out Switzerland's four page application, paid 80 euros...

For a *Schengen visa*, the *entire U.S.* has *four* offices to handle biometrics.

So, I had to go from Pittsburgh to New York so that I could put my fingers on this funky machine, just to turn around and go back.

The New York consulate's first available date for the Switzerland visa was ... September 1. That would be after the start of my trip. And I had already paid 80 euros just to see that I couldn't do it. What kind of terrible user interface is this — where I couldn't even see available appointment dates until after I paid for the application?!

> "Contingency plan: search up every fucking country in the EU's application process and appointment dates for New York... Manually... Sorry I'm spamming, I'm fuming"

Indeed I was. I actually did consider going instead to San Francisco ... or Washington, D.C. ... or even Atlanta ... but because I couldn't see available appointment dates unless I paid for the application (which doesn't transfer between the countries' offices, by the way). I didn't want to risk throwing my money down the drain. I looked at Danish embassies instead, which allowed me to see appointment dates before applying (see, it isn't too hard to not suck) and found out that there were availabilities for July 1 in Washington DC and July 15 in New York. Because I couldn't be sure that my passport was going to come back to me on July 1, four weeks after I sent in my passport, I went for the New York one instead. I paid 80 euros a second time.

If you're getting confused about the whole process so far, I'd like to say you're not alone.

I was confused at first too, before complaining, giving up, then following along and untangling all the logistics. I interlaced two visa application processes together because I just didn't have enough time: a few months is still a few months short for this extreme bureaucracy. If you'd like guidance on the process and see more illustratively why it got me frustrated, see the simplified timeline in the form of a Candy Land board accompanying this article.

Without my passport, I couldn't travel by plane. This meant, assuming first and foremost that I got my passport back before July 15, either I would take the train from New York on the way back, or, to solve this problem in the long run, apply to get a Massachusetts state ID so I could fly back, which would require travel to Boston. Possibly by train because of this mess. So I did the reasonable thing ... and booked both flights and trains to Boston, juggling my PTO days for this feat of logistics

By late June, my anxiety was rising. Time was ticking. *Where* was my passport?

> "idk why i got myself into this labyrinth of two visas, one mass id and several out-of-state trips;-;"

Miraculously, on the 23rd, a mysterious UPS delivery notice appeared on my front door. It was truly amazing news, despite the fact that I had to wait another day to catch the UPS driver! All my trains could now be canceled. June 30, Boston, for the Mass ID. It took two weeks for the ID to arrive, leaving three days to spare before I had to fly to New York for the Denmark biometrics appointment. Again: four pages of application, recently taken photos, my U.S. student visa for legitimacy, three months of bank statements, proof of enrollment in MIT, detailed itinerary, hotel and flight bookings, and travel insurance certificate of coverage. That was a mouthful — the Schengen asked for so much. As you may notice, there's another Catch-22 situation here: hotel and flight bookings are needed to apply for a visa, and the visa is needed before you can fly to the country and sleep in a hotel. Ridiculous, right?! For this, one can either purchase cancelable flights and hotels, or go use a sketchy dummy ticket service that costs a hundred dollars and "guarantees acceptance by Schengen visa."

Oh, VFS Global "assists" the Denmark visa application process as well. My Denmark biometric appointment was at VFS headquarters, where employees also went through my documents and sent them to the Danish consulate for me. \$65 for a one way delivery of my passport back to Pittsburgh, since I went all the way to New York myself already. What's the grand total now? Four hundred and eighty dollars. One ding of a notification from VFS, and my passport went away into the unknown again.

Almost three weeks later, August 4, is the date this article was written. My anxiety has risen, yet again, because my passport has essentially gone missing for all this time. Yesterday, the Danish consulate called me to ask for additional documents, because I missed some.

> "bruh. BRUH. I NEED TO SEND MORE DOCUMENTS WITHIN THE NEXT 2-3 DAYS, ONE OF WHICH I BROUGHT TO NEW YORK BUT SOME WORKER SAID I DON'T NEED TO SEND IT IN. I'M LIKE. UGH"

I scrambled, during work, to regather additional documents, get a FedEx shipping label, go home for one original document, and go to FedEx before it closed at 7 p.m. I was not successful, so I bussed to the main FedEx ship center of Pittsburgh, which closed at 8:30 p.m. Success. Small win. My documents were delivered this morning, and the Danish consulate sent me an email:

The documents were received by email and by Fedex. There are no other requests for further information at this time. The application will continue processing.

I have one week left in Pittsburgh before I go on the trip I started planning half a year ago, and I'm still waiting for my passport. This whole trip can still fall through. Last Catch-22, for those wondering if I could start earlier: I'm close to hitting the limit for the earliest time to apply for a visa. Most countries only allow visa applications for trips three or six months in advance.

Take your guess if I made it to the U.K. and Europe.

Originally published in Volume 142, Issue 19 on September 21, 2022.

THE HOME PAIGE

Giant

Bigger on the inside

By Paige Bright CAMPUS LIFE EDITOR

On the last day of sixth grade, my teacher sat us all down and gave his end of the year speech. "I hope the best for all of you," and 'Seeing you grow over the span of a year has been amazing." Then, he told us the perfectly cliche quote:

"Dance like nobody's watching; love like you've never been hurt. Sing like nobody's listening; live like it's heaven on earth."

This felt like my own Mr. Feeny moment, my own "Believe in yourself. Dream, try. Do good." Except, for years I had an uncommon interpretation of this quote. In my mind, I heard: be confident, because everybody's watching.

In high school, I started to feel comfortable taking up space for myself. I didn't want to feel so small, and I was confident enough to make it happen. I became known at a local coffee shop; I got a job as a math tutor; I talked, and listened, and talked, and listened to anyone who would give me advice. "Why'd you decide to work here?" "Can I audit your class?" "What's your name?" My world slowly expanded around me. If everyone is watching, you better believe I am going to be seen.

Then, I got into MIT. And everyone was watching.

"When I was on the train from Liverpool to Cambridge to become a student, it occurred to me that no one at Cambridge knew I was painfully shy, so I could become an extrovert instead of an introvert." John

The first week of college, after struggling through a pset, I went to office hours. The problem I asked about was named after a well-known German mathematician I had never heard of. When I tried to say his name,









I constantly look over my shoulder to make sure I'm not blocking someone's view.

the syllables fell out of my mouth to form a weird amalgamation of sound. And everyone laughed. Or at least, that's what it felt like. I was a bit embarrassed, but almost instantaneously I embraced this. I became the pset partner who wasn't afraid of asking the dumb questions.

I've been trying to take up space at MIT. On the fourth floor of Building 2, there's this little common space of tables and chalkboards where I just sit and work. Sometimes for a few minutes, sometimes for a few hours. I move one of the tables to be closer to an outlet, and I neatly write a to-do list on the board. And I get to work. I wave to students and professors walking by, and sip away at a Hayden coffee. I have been feeling so much more comfortable existing in this past year.

So why have I been feeling so large? Specifically in classrooms. One moment I'm just taking notes, and the next I feel like a giant. It started last semester (albeit, the first semester I had on campus) in 18.101.

There were at *most* 10 students who would regularly attend lectures. And yet, I was constantly looking over my shoulder to

make sure I wasn't blocking someone's view. Part of me chalks this up to internalized transphobia.

I found it difficult to do anything last spring. Between classes being online and not knowing many people on campus, I hardly ever left my room. But, on the few occasions when I would venture outside of the halls of McCormick, I would explore. I learned the building numbers of main campus, and I wandered around the tunnels. Every hallway I walked down, and every classroom I could enter was filled with wonder and excitement.

On one such exploring day, I took two pieces of fresh white Hagoromo chalk, went to 4-159, and wrote "Dr. Paige Bright."

And I thought to myself: one day, this will

I like creating moments like this. Moments that, one day, will create a perfect little movie montage that overlooks all the pain and suffering I went through to get to where I am. They make me feel less small. Even if I don't know exactly where I am headed in the expanse of the cosmos, I would like to think that moments like this get me there. The moments I stumble across, however, are even more impactful — like the first time I walked down the hallway between Building 4 and Building 2.

In this hallway, there is a Wall of people in the math department: Professors, Academic Staff, and Graduate students. And just like when I wrote my name on the board, I had another thought that is going to stick with me: one day, I will be on this Wall. This was followed by the not so pleasant thought: "If I were on this Wall, I'd be taking away a spot for someone else."

For this smallest fraction of a second, I saw the Wall and thought "there are so few people here who aren't men. Why should I be among them?" As if being transgender makes me less of a woman.

Of course, this isn't what I believe, and I want there to be more transgender representation in education. But for this smallest moment, some cosmic force made me feel like I shouldn't get to take up this space. And I felt so small.

Promptly after telling us to dance like no one's watching, my teacher played the scene from Napoleon Dynamite in which the titular character dances in front of a huge auditorium. I sat there, letting the irony sink in. Everyone was watching. Everyone could see him. At its core, the quote acknowledges the fact that people will watch: so how would you like to be perceived?

I want to be confident, I want to be more than a speck in the universe. In pursuing this, I have taken up more space. And I like this; I like walking around, seeing people I know, and feeling confident. But with this comes the duality of sometimes feeling unbearably large, and occasionally feeling dismissively small.

Nonetheless, if everyone's watching, I am going to be seen.

> Originally published in Volume 142, Issue 4 on March 10, 2022.

CURSED THOUGHTS

To You. Yes. You.

Living out my new year's resolutions

By Ana Reyes Sánchez

SENIOR EDITOR

I woke up today and thought about how it's my last first day, felt anxiety grip me in sweat and thought, how, how, how; is this it? I woke up today and I reread some of the messages I sent you last night. I'm listening to a very specific playlist, even though I probably don't understand all the songs quite right.

I sat up in bed and cried, because it's my last first day. I thought about how much I'll miss you and how close and far you are and how you, too, have that power to recontextualize things for me.

I'm scared, but more ashamed that our situation seems like an insurmountable hurdle. It's not easy for me to hear how I'm loved, when circumstances necessitate that I won't be able to feel it.

I got out of bed slightly too late, and textyou for a granola bar, and I walked to class thinking of you. I was distracted in class, despite the fact that it's my last first class. I called my parents on the way home, but couldn't speak right, and I felt something of substance hollowed out inside myself.

You said parallels; you said narratives. About the playlist and the spreadsheet and the dumplings we'd planned for today and how we're living our lasts this semester.

It is my last first day, and I am looking to the future and knowing that I will be lonely without you.

I texted you that my head felt stuffed full of little paper scraps, and we ate breakfast together and I kept thinking, thinking, think-

Today is my last first day, and I went to get coffee with you, but we ended up eating tortas in an alleyway instead. I wanted to share something that belonged to me, but you picked up the bill. I'll get it next time; the days are so short; one more round of coffee.

We went on a walk throughout Porter Square and I thought about how happy I was to be there with you. Grateful, even, that I woke up today in the mood to ride the T for three hours.

My life is so full of love now; I'm terrified to watch it go.

But I don't say "I love you" enough, do I? I don't say I love you enough because sometimes I can only back away from the intensity. Sometimes "I love you" makes me feel backed into a corner, because there is so much substance in those words. It stings to see how much power I hold and how much power is held over me.

I won't be gone, because I don't want to be gone, but I don't brush my teeth every night with Ruth anymore. And we don't make breakfast together the way we always say we will. And we drive each other crazy, sometimes, and I'm sorry.

I don't say "I love you" enough and you thought this article would be about some-

But it's me, it's me; I will do better in the morning.

It's my last first day, and I keep listening to the playlist I made last night. The songs on that playlist feel like they belong to other er people. Many things in my life belong to

- · the blanket covering me,
- the plushie at the head of my bed,
- the bags of things that once belonged to you but will belong to the kids,
- the trenchcoat hanging over my chair,
- · the pride flag you gave me after that summer program,
- the notebook tucked into my shelf that you made me,
- the pin on my jeans,
- the notes on my wall,
- the lights you put up in my room, the kraken on my table,
- the Mexican mug on top of my dresser,
- · the letter you wrote for my birthday and the letter you had written,
- · the post it note you gave me in high
- the poster you got for me that I look at
- when my dresser is open, · the gender signs on the doors of my wardrobe,
- the mug we painted together in the Cheney room,
- the scarf on my door handle, wrapped around me with the promise of giving it back later.

I want to hide from them, but I can't because I love you. Yes. You.

I keep thinking about what you said in that Zoom room: "while you all are experiencing so many lasts, I'm getting many of my firsts." And I said thank you, right? For sharing those firsts with me?

It's my last first day, but it's different because it's no longer the last "first day" of a semester, but it's my "last-first" the same way that "sorry-grateful" and "laugh-shrimp" fit together like puzzle pieces in my head. It's my first day of classes, and the last time it'll happen this way, but the first time that we've made dumplings together in the kitchen.

I keep making a list of last-first things:

You told me — last sister week, as we sat in the philosophy lounge — that I remind you of your older sister. And yesterday you sent me a snapchat of your window frozen over, and I thought, oh sweetie, how'd you forget to close your window? Put on a sweater.

I sat around a table at Flour with you, the four of you, and you didn't get your sandwich so you took half of someone else's. And I explained the activity, because it was your first time doing it but my last. You filled in some of the gaps that I had left behind, purposefully or not. And we made the same jokes that we've gotten used to making. I've forgotten the inside jokes behind my high school friend's contact names, but I don't want to forget these.

You looked very cute, laying in the snow tunnel in those pictures. I'll post it on instagram, I promise, even if you don't read these words. You are spectacular, and intimidating because of it, and I will do my part to bully you more this semester.

Eventually, there will be a last "hello" message. Ruth told me, weeks ago, that you used to text her at 2 a.m., but you've stopped doing that since last semester started. And I tried to stop myself from the thought that I've been having lately: you will suffer when I'm gone, but eventually you will replace me.

I've said this before, but have another thank you. For what you did that summer after sophomore year, but also for everything that has come after that. You're my favorite roommate, still, and I hope you read the text I sent you soon because it's really funny. I'll tell you all about it later.

I wrote this in the end-of-year letter (the one I posted in the-most-ridiculous-place with the-most-ridiculous-name): I don't remember a lot of our lasts the way I remember our firsts. Maybe it was because so many lasts have been taken from us. We all know how loving ends, and I'm so scared about the mandarins. That "one-dimensional" day, I was scared to eat it. When I finally did, it was a little tangy, a little dry, and delicious. I ate the plums that were in the ice box; at lunchtime I bought a huge orange — the size of it made us all laugh; leave something of sweetness and substance in the mouth of the

I was so scared in that emergency room because you were in pain and I didn't know how to fix it. But there was also something consuming about that environment, and the way that I gave you my sweater, pretending it wasn't cold. I wrote this before, but I'll always put your hat on for you. Giggle more often, it's very cute.

You told us we were family in the math lounge and I didn't know how to respond because you're always so genuine in your existence and I often feel scared. You remind me of Ash and me, sometimes, the way that we used to be together when I was in high school. Don't lose those traits in the shuffle of life, please.

The last time we ate at Simmons together and I told you about the trenchcoat and how much it means, I also thought about how much you've grown since the time I met you. You're so much older already; keep writing your short stories and creating narratives and texting me my articles, even if they won't be articles soon.

We walked to Toscanini's in the freezing cold, even though they didn't have anything warm like you promised. And I listened to you talk, even though it was a little bit windy and hard to hear. We'll get McDonald's later and recreate some moments, I promise.

To You, Page R5

To You, from Page R4

We still have chayotes to make in the fridge; I want to prepare them for you the same way my mom does for me. We'll heat up Nesquik and drink it together. I still think that I was right for keeping that guava jam, both because I still have some for us to share and also because it's a memory, kiddo, not a jam. There's a limited number of guavas now that my neighbor has cut down the tree, but I'll still share future ones with you.

We're going to spend so much time this semester in your narratively circular New House single. Believe me, I have already blocked out the hours to make more pancakes and drink more oat milk on the fuzziest rug in the world.

Favorite memories are so strange. You could have never guessed the significance of that day walking back in the rain, or why I gave you my coat. You left before you saw me shivering in the rain, thinking of how glad I was that you were warm. But you're right, of course, that it's the insignificance of that moment that makes it linger. I can't remember if I told you, especially with everything that's happened, but my New Year's resolution just meant I wanted to linger with you. I'm sorry; I still want to hold your hand this semester, even though I know I won't be able to.

'Hasta la Raíz" is playing and I'm remembering the *Song Exploder* episode I watched with Ruth and how one day we won't be family — shouldn't be, when I'm an alum but you will still have cast your roots in me. It's been hard watching the gap I'm going to leave in you, but I hope you manage to fill them with light anyway. A secret hidden in plain sight, I wrote two years ago, let's love so *much that we light up the world.* The email's still probably somewhere in the drive, if you want to read it.

It's my last-first day and I've been on the T for three hours now. I'm trying to live in memories and hope for the future and remain in the present moment; impossibly I think I might actually be doing it, but not enough - never as much as I want to.

You told me to take the T across the river and I finally listened. And these are spoilers, but I already messaged most of them to you

I realized, first, that you must hear "Kendall/MIT" so often. Do you ever think about getting off there? Did you used to have the instinct? Has it been a while since you considered it an option?

And then we passed the stop and I waited with a playlist in my hand and I felt more than saw the light coming into the cabin. The song changed to dodie's "Arms Unfolding" and, stupidly I thought, emerging: it was once dark but then it was light.

The river was frozen over and the surface dusty. I could only think, *G*d I hope you see* it too. I thought about that Hozier song. I probably still don't understand it quite right, but listening to it makes me think of you.

I imagined when you saw the river the first-last time, it was probably moving and the waves glistened. And it was too bright to look at directly and maybe that made it hard to see. Difficult to look at, in the same way that love is for us, but substantive.

And I think you probably thought I was thinking of someone else, but I could only think about how I hope you see it often. I want to watch it with you, but we will have all the time in the world.

Thank you for sharing that with me.

I got back to New House late because I stayed a bit longer talking to you. It feels unfair to write it here before everything has been said, so I won't write it yet. But I will work on not saying "kid," especially because that care is not gone — it won't be if I can help it.

When I got back home we messed up the recipe for dumplings and I played Tracy Chapman in the kitchen and I sang along to it a little, did you hear me? And you cracked my back the way we've been trying to do for a semester. It hurt but not physically. It hurt because it was last-first and because I don't think you'll understand this article, even though it's for you.

And I almost cried, a couple of times really. The last-first of which was when you laid your head down on my arm like you do when you don't know how to comfort me but still want to be there. Thank you for staying. I'm so proud of you, kiddo. I love you so much; I say that in many ways, but in words less often.

The dumplings tasted really good even though the shrimp was precooked and we had to improvise. That's often how cooking goes for us. Don't forget me next semester when you're figuring out what to eat in the midst of classes and psets and meetings and

I sent you a video of the dumplings and our kid trying them. I'm trying to make sure this isn't the end. Maybe our lives are running in parallel, but that's how the narratives work, love, each two inches to the left of the other. I want to delete that word "love" because we don't speak like that to each other. But I'm leaking out to you - for you. I just want to say that I believe what I heard in those songs, and I'm oddly looking forward to our individual office hours tomorrow because it's the lastfirst step towards something.

I finished the dumplings and started writing these paragraphs, but got interrupted because we ended up on the floor of my room swapping stories from the past week.

It was a type of fun I haven't had in a while. I tried not to think about how last-first it felt because I want to have so many more of those moments. I thought about how you put up my fairy lights last semester, and how I can still see us there, balancing on the corner of a chair. But then I was in the present and we were giggling about my boss and I threw my body back into a full laugh.

And now, I'm in my room writing this and wondering if anyone other than you will understand these words, but also whether you will understand them yourself. But my stomach is full from the dumplings we shared and my bones are full of so much light they're going to burst along the cracks.

I think, I will fall asleep happy tonight.

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WENBO'S WALKS

Wind, rewind

All I want is a normal week

By Wenbo Wu

Driving slowly through the hills feels like being told to calm down and breathe: the temporary high, the hiccup, and the everlasting descent. I wake in the mornings, a ray of sun dancing through the windows onto my sheets, forming a weighted blanket of air. Sitting up, the iridescent covers shed from my chest, but the weight

I've been silent for a semester now. "How are you?" It's amazing how much you hear when you have nothing to say. "I'm well." "That's great!" "Maybe we should hang out?" I'm wound up, programmed to say these few phrases for an eternity. Maybe I'll actually hang out, but more likely than not I'm glued to my bed, unable to find the activation energy to even get up. Why don't I have more to say?

After all, I TA'd my first class; I got my driver's license; I ate all-you-can-eat sushi for the first time. But I also had my first mid-exam tunnel vision; I started speaking to the ghost in the passenger seat; I ate a tub of ice cream Tuesday night and refused to eat more than 800 calories per day the following week.

But you see, static is everywhere. Some days, I can't even look at people without the fog creeping in. There's shame in making eye contact. Everyone is disappointed in me. Once I'm far enough south, even FM 98.7 playing softly on the radio fades to silence. People laugh, crack a few jokes, open a cold Diet Coke, and how teeth when I greet them over the

The sun sinks below the rooftops, cloaking us in a fluorescent golden hour. ing will get in my way. Two minutes to get



I'm wound up, programmed to say the same old phrases over and over again

I look at you. I feel the physical fabric of space between us, but I'm not really there. I'm a thousand feet in the air, piloting a pale reflection of myself, going through the motions during the week, and rewinding on the weekends

Today is a roller coaster, and noth-

dressed, another five to get ready, and a ten-minute timer ticking down to class. Todos, to-dos, and more to-dos. From now on, I resolve to make one such list every day. I promise to be doing something every waking minute, checking things off: two, three, pset, class, pset, lab, class, club, socialize, Chinese, and maybe, just maybe, sleep. Breathe.

A hundred reminders go off on my phone. Wow, the Stud food tastes incredible today. I tend to each notification in succession. "We should ride the commuter rail to Cohasset and just run around in the parking lot." "Has sparkling water ever tasted this good to anyone before? Okay, me neither."

My vision is 20/20 behind these glasses. I notice every blade of grass. I finally use that BlueBikes subscription for the first time in months. The garlic sizzling on the pan smells like home. I eat some spinach, snack on carrots and hummus. And as the old saying goes, "fitness isn't just a hobby, it's a lifestyle."

When I step outside, I can hear the birds harmonize. This mountain is silent; the echo of our voices is impeccable. I'm going to make sure everyone sees what I'm made of. The air is thin up on that hill, but my will to ascend is stronger than the weight of the atmosphere above me. I make a joke. My friends laugh, smile, and, just maybe, crack open a Diet Coke over the kindling.

The sunset shows its opalescent colors, and like magic, silence falls. Time slows as I gaze at you. I'm firmly rooted to the ground, but my spirits are a thousand feet high. I laugh, jot down a few more notes to finish the pset due a week from now, and breathe a sigh of relief as I rewind through the highlights of the week.

And sometimes, it's just a week. A normal, uneventful week. No abysmal lows or insurmountable highs. That's all I've ever wanted, and that's all I'll ever need. This simple desire for monotony still feels like a gift when it dawns

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Got a lot on your mind?

Share some thoughts with us! Write for Campus Life. join@tech.mit.edu



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The Opinion section of The Tech is and has always been a display of our community's diversity and unity, raising questions and fostering debate. These resulting public or private conversations facilitate perhaps the most critical aspect of being part of a community: participation. When we talk to each other, we can simultaneously recognize the experiences of others, offer support, share our own perspectives, and provide dissent. The Tech's Opinion section strives to be a public platform on which these conversations can play out in writing.

One of the biggest topics of this past year concerned graduate student unionization. Pro-unionization graduate student-workers came together to show solidarity for each others' experiences, sharing their stories as lab members, tenants, international students, mentors, veterans, survivors, and more. Meanwhile, other student-workers, the MIT senior administration, and faculty members replied to these stories, acknowledging the points made while sharing their own perspectives and reservations about unionization, what it represents, and the union's current state.

While the issue of unionization demonstrated the diversity of opinions, other issues presented a more unified front. These included topics as far-ranging as opposition to Russia's invasion of Ukraine, the seeming lack of transparency and input surrounding the continued closure of MIT's campus, and

campus. We are all lifelong students, and

the Infinite Corridor and other MIT spaces

lose much of their value if impressionable

students of all ages and curious minds

from all backgrounds can no longer share

space. Much of what makes MIT special

is that we interact with the community

rather than turning our back and closing

to the hallowed halls where we learned

to be the scientists, engineers, politi-

cians, doctors, teachers, and innovators

we've become and stay connected to the

MIT community. Many of those of us who

are graduates have naturally drifted away

from campus to pursue jobs and careers

with the skills and knowledge we gained

in our time at MIT. But many of us feel the

call back to the place we spent our young

adulthood and return — to show our fami-

lies, friends, business connections, and

children the place where we got started.

Making campus a place to which we can

no longer return weakens our ability to be

ambassadors to the future community of

MIT and continue the legacy that has al-

the Better World Campaign to strengthen

its position as a leader in tackling hu-

manity's urgent challenges. We've also

implemented diversity, equity and inclu-

sion policies which seek to create a more

welcoming campus, while at the same

time erecting gates and obstacles to those

who wish to join us. We cannot create a

better, more inclusive world on a global

In recent years, MIT has undertaken

ready been built.

For alumni, we can no longer return

itself off.

what the MIT Pharmacy's permanent shutdown could mean for the future suspension of other employee and community benefits.

This year's pieces have ignited other critical conversations, too. What does free speech mean, and how do we protect it? How fair is MIT's financial aid process, and who does it leave behind? What is MIT's role in protecting our environment and slowing climate change? Pieces that raise these and other questions highlight the value of community contribution to our Opinion section, and we hope that you will continue to share your thoughts with us in 2023.

> —Wenbo Wu '23 Volume 142 Editor in Chief

OPEN LETTER

Open letter on open campus access

Dear President Reif, Chancellor Nobles, and Provost Barnhart,

We write as more than 2000 MIT students, alumni, faculty, staff, affiliates, community members, and neighbors who strongly disagree with the recent decision to maintain a closed campus at MIT going forward. While reasonable precautions were necessary during the pandemic before full vaccinations were available, closing MIT's campus will diminish the openness which makes MIT the vibrant, collaborative, forward-thinking place that it is. This letter calls for a return to the century-old openness policy as it was before

As President Reif said in the 2016 preface to the MIT campus guide:

"Because openness is a central MIT value, our campus is open too. The vast majority of our buildings are open to the public and the campus has no visible perimeter; we are an aggressively ungated community that works around the clock and welcomes the world in."

MIT students and community members have used this openness in many ways. It can be to collaborate or socialize at MIT with the broader community, share lectures with high school students eager to learn, and hold meetings or meet for coffee with visiting scholars, tech and life science entrepreneurs and other visitors to

about the pharmacy's closing:

There are no Pharmacy people, for

lack of a better term, in MIT Medical management and decisions about how to run the pharmacy and ultimately to close it and how to close it, were made without our input. As a result of the rush of it all there are, unsurprisingly, a lot of unexpected problems presenting themselves to management. The Pharmacy, as the place drugs are received and distributed through Medical, provides a lot of connective tissue that is being removed and replaced with two pharmacist positions vet to be filled or trained. It is unclear if they intend to hire any extant Pharmacists

Morale in Medical in general seems very bad, with people wondering who is going next. It is very hard to work for some folks who are willing to mislead you while setting up to get rid of you.... It feels pretty bad. There has been a huge outpouring of support from our patients, and we deeply appreciate it.... It is nice to know you made a difference and MIT Pharmacy itself was one of the best, most wholesome places I have ever worked.

from here, not that how they have treated

folks here engenders a lot of trust

It feels like...Medical [leadership] was handed a beautiful antique watch and, rather than learn how it works and how to maintain it, banged it against the desk a few times and, fundamentally incurious, tossed it away."

The news of the closure was slow to trickle through the wider MIT community, as some staff who use the MIT Pharmacy regularly did not even receive the initial announcement. As the news did start to circulate, many staff members, ourselves included, were shocked to hear about the abrupt announcement, the treatment of the pharmacy staff, and the loss of easy access to a pharmacy just as more people are expected to return to campus. Conmany MIT startups were inspired, not by looking around campus, but by engaging those beyond campus to find important problems to solve? How many key research insights came about from chatting after a lecture with a member of the community?

An open MIT is imperative to a vibrant MIT, as it has been for more than a century. A limited set of open buildings do not keep the current campus from being closed radically more than at any time in its history. This major policy change to close off the campus was made with little community process or input. If this is a change MIT wishes to make, it should take place only after a full community process involving current students, alumni and community members. Rather than making these changes now, MIT's administration must take the time to interface with us and learn about our concerns, and what we will lose with a closed campus. We believe that we will find that the positives of an open campus dramatically outweigh the negatives, and ask that you rescind this policy and retain a fully open MIT until this process can take place.

Thank you,

1255 MIT alumni 447 current MIT undergraduates 265 current MIT graduate students 155 current faculty and staff 225 other affiliates and community

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cerned staff members wondered why the broader MIT community was not consulted and if there was a way to stop the closure on such a tight timeline, pointing to the still-in-development MIT Values Statement that declares a commitment to collaboration, transparency, and trust in each other as pathways to solve problems.

Questions around the closure also brought to light additional issues about how the decision was made and who had a say in the process. Neither pharmacy staff nor pharmacy customers were asked for feedback. The decision came down as final without much communication or clarity about why the community who uses this campus resource was not made aware that a closure was even under consideration, much less imminent. MIT has a wealth of eager community members ready to solve major community problems. The sheer number of task forces, committees, working groups, and employee resource groups on department, lab, center, school, and institutewide levels testify to a deep commitment to preserving what makes MIT so exceptional and making it an even better place to study, research, live, and work.

The closure of an on-site pharmacy may initially seem minor when there are retail pharmacies to be found on every corner (though still not in Kendall Square), but it does prompt the question of: What's next? What will be the next convenience, perk, benefit, or job to be abruptly ended?

Sharona Bollinger Marketing and Admissions Assistant in the MIT Leaders for Global Operations Program

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OPEN LETTER

An open letter on the closing of the MIT Pharmacy

On March 9, an email went out to those who have filled a prescription at the MIT Pharmacy (located inside the MIT Medical building) in the past year. This email announced that the pharmacy will close on April 29. It also stated that "no new prescriptions will be accepted at the MIT Pharmacy after March 25," and that "existing refills will be processed until April 8." In addition, the reduced prescription copayment rates offered by the MIT Pharmacy will only continue at other in-network pharmacies until Dec. 31, 2022. This decision, which will negatively impact staff, students, faculty, and other MIT affiliates, was made without adequate input from the MIT community at large.

The email links to an FAQ page on the MIT Medical website. It lists the reason for the closure as a reduced customer base during the pandemic due to hybrid schedules and an increase in use of alternatives, including mail order and same-day delivery services for prescriptions. This does not take into account that hybrid work schedules for staff are not guaranteed to be permanent. After only one semester of hybrid schedules in Fall 2021, followed by an Independent Activities Period in January 2022 during which institute administrators encouraged staff to work from home as much as possible, closing the pharmacy because of hybrid schedules is not justified. It is not known how much longer hybrid work will continue, and essential staff as well as students, retirees, and others who are not on this kind of schedule were not even considered.

The pharmacy staff themselves were informed of the closing only the night before this email went out. These staff memscale while shutting it out locally. How bers were not consulted at all during the actual decision-making process. A pharmacy staff member at MIT Medical who wished to remain anonymous said this

OPEN LETTER

Ukraine is fighting the war that we should be fighting

The following letter is adapted from the speech given at the MIT Vigil Rally that took place March 3.

In the past week, the world has seen heroic images of Ukrainian resistance against Russian invasion. Students picking up arms to defend their homeland; civilians forming human walls to stop the enemy's advance: Ukrainians abroad organizing awareness and fundraising campaigns; Ukrainian President Volodymyr Zelensky standing his ground, unwavering on the front lines in Kyiv. Ukrainians' efforts have been portrayed as an act of self-defense, of patriotically defending their country against foreign invaders. What we need to realize is that Ukraine is not just fight $ing \ for \ itself -- it \ is \ fighting \ for \ the \ freedom \ of$ people around the world.

Just a few hours after Russia invaded Ukraine, China sent a sortie of warplanes into Taiwanese airspace. North Korea fired yet another ballistic missile. The governments of Venezuela and Myanmar are continuing their human rights abuses. These incidents continue to happen because Russia is empowering these countries. The Ukrainian army is fighting, right now, not just to defend their homeland and their people but to defend us, to defend our freedom, and to defend democracies around the world.

In 2014, Russia annexed Crimea, and the world watched in silence: even the sacrifices of the Euromaidan protests were not sufficient for us to act. In 2019, when China killed democracy in Hong Kong and in 2020, when Belarus brutally cracked down on peaceful protesters calling for fair elections, the world stayed silent. All these events, directly or indirectly, have contributed to the war in Ukraine today. Putin is sending troops to Ukraine through Crimea and Belarus; and it is because we, as democracies, failed to act in the eight years leading up to this war that now the Ukrainian people are suffering.

This war is not just about Ukraine. It is not just about Taiwan, South Korea, or some other far-away democracy that stands as the next domino to fall after Ukraine. Any country could be next. Any home, any family could wake up to the sounds of shelling and missile strikes. On March 2, Russia sent warplanes into the airspaces of Sweden and Japan. If the war in Ukraine isn't proof enough, this further demonstrates that being an ally of the free world — even being part of NATO –

not a guarantee of safety. Even in the U.S., there are people waging a war of misinformation; there are Americans supporting Putin unapologetically; there is the looming threat of authoritarianism trying to take over. This is what we are fighting against.

The current situation is not one in which we are trying to help Ukraine fight their war. It is one where brave Ukrainians are fighting our war, the war that we should be fighting in the first place. Ukrainians are fighting and dying to protect the ideals that we claim to uphold: freedom, liberty, democracy. Why is it that we are not fighting with

The free world has been large on words and small on actions in the past eight years. While a general atmosphere of appeasement certainly played a role, it has also been frustratingly vague when it comes to "how to help." For governments, traditional diplomacy seemed to have lost its viability. For individuals, there have been very few options beyond "raising awareness" via social media. This time, however, the movement supporting Ukraine seems to have succeeded where previous attempts have failed.

Ukraine is remarkably adept at resisting their foe in this modern, digital age. Their proficiency spans all levels, from the highest echelons of government to each and every individual. President Zelensky, who

won the 2019 election with a mostly virtual campaign, has forged an online persona of staunch, unwavering resistance. The Ukrainian Army has mastered the modern art of crowdfunding, which it has been practicing since 2014. Perhaps most awe-inspiring is the fortitude of individual Ukrainians, from those resisting the invasion on the front lines to those helping abroad. We see many displays of this courage here at MIT Ukrainian members of our community who, despite bearing the pain, anger, and incessant dread of war, stood up and organized a massive ongoing campaign to offer us a chance to help.

Our Ukrainian friends are doing so much to tell us exactly how we can help. They are swallowing back tears to publicly recount the atrocities committed against their families. They are resisting the urge to fly home and pick up a rifle, so that they might be able to find some help for their country abroad. They are mustering the tenacity to not constantly check the news and their messages, but instead focus on creating an entire support campaign from scratch. They are doing this for our sake, so that this time, unlike our past blunders, we actually have a chance to pull our weight in our own fight. Donate to support Ukraine — the National Bank of Ukraine has already made it as easy as clicking a few buttons, and the MIT Ukrainian community has made it even simpler. Pick up your phone. Call your representative. Demand MIT to act now.

MIT as an institution has valued the critical importance of ethics in science and the significance of science in ethics. It is time for us to once again stand up for these values and ensure that our actions reflect our beliefs. MIT should continue to publicly support its Ukrainian community. The administration should disclose its ties with Russian oligarchs, Russian oil, and reconsider the ethical implications of their investments. We should also leverage our political influence as an institution to amplify the voices of our Ukrainian community, and do our best to support Ukrainian students both financially and academically. Only in such a way can we, as an academic institution, live up to our commitment towards ethics and our responsibility towards society.

I am so proud of my Ukrainian friends for organizing this powerful, coordinated effort. They are doing so much just to offer us the chance to help, handed to us on a silver platter. Now, it is up to each and every one of us to act for Ukraine, and to defend ourselves.

Слава Україні!

Yu-Chi (Jacky) Cheng '23

Originally published in Volume 142, Issue 5 on March 17, 2022.



Prostestors gather in Boston against the war in Ukraine, March 6

GUEST COLUMN

Free expression and academic freedom on campus are worth fighting for

MIT must recommit to the values of open discussion and dissent

By The Board of MIT Free Speech **Alliance**

Anybody connected with MIT has likely heard of the "Abbot Affair" by now. Dorian Abbot, a geophysicist from the University of Chicago, was invited to give the pres tigious John Carlson Lecture, an annual public event of the MIT Department of Earth, Atmospheric and Planetary Sciences. Though it is unrelated to his research or lecture topic, Abbot is an outspoken advocate for "Merit, Fairness, and Equality" (MFE), in opposition to the "Diversity, Equity, and Inclusion" (DEI) initiatives that are now the norm on many campuses, including at MIT. Abbot has made many controversial statements in the public square in his defense of MFE. After an uproar both internal to MIT's campus and on social media about allowing Abbot to speak, the department canceled this year's Carlson Lecture and invited Abbot to instead give an internal colloquium to the department.

Whatever your views are on DEI or MFE and whatever you think of Abbot's public comments, this cancellation is a clear sign that academic freedom at MIT is in peril. That many find Abbot's comments in favor of MFE offensive (including some members of the MIT Free Speech Alliance) is entirely to the point — protections of academic freedom ring hollow if they only apply to speech that offends no one. The fact that Abbot was an invited guest rather than

a member of the MIT community and the fact that he was offered an alternative (less prestigious and less public) opportunity to speak about his research do not justify the cancellation of his original talk. With this decision, based purely on Abbot's sincerely held ideological perspective outside his scientific contributions, the MIT administration has signaled loud and clear that diverse perspectives on important topics of the day are not welcome on campus. That in fact, even someone who speaks on a purely scientific topic must be vetted for their political views.

Why should we care about academic freedom and free expression on campus? Those who feel that free expression is an outdated concept have very short memories. The movement to protect free expression on campus was, until recently, the purview of the left, and was intimately tied in with the anti-Vietnam War movement and the civil rights movement of the 1960s. The freedom to express unpopular, even upsetting or offensive, speech is crucial both to progressive social change and to the academic process. As individuals, it is deeply hypocritical to only stand up for the right to express our own views and not those we disagree with — freedom "for me but not for thee." That is why the American Civil Liberties Union (ACLU) went to bat for a group of actual Nazis in the famous Skokie case in the late 1970s. They understood that limiting the fundamental right to free expression will inevitably silence

the oppressed. As former president of the ACLU Nadine Strossen put it in her book Hate, such restrictions "are predictably enforced to suppress unpopular speakers and ideas, and too often they even are enforced to stifle speech of the vulnerable, marginalized minority groups they are designed to protect." These words were specific to the legal protection of the First Amendment, but as Strossen makes clear, can be applied to free expression on campus as well. Specifically, the academic freedom of faculty to challenge the establishment is fundamental to the role that an academic institution like MIT must play in testing, debating, and discussing a diverse range of ideas about the important topics of the day, of which DEI clearly qualifies. As she writes, "In light of the enormous power of private universities... either to facilitate or stifle the free exchange of ideas and information... except in unusual circumstances, [private universities] should permit all expression that the First Amendment shields from government

If the only person harmed by the Abbot Affair were Abbot himself, this would be a relatively small concern; Abbot has weathered this just fine. But an administration that signals a lack of strong support for free expression on campus stifles speech across the board — in classrooms, research laboratories, dorm rooms, and the public square. This is not idle speculation; a recent Heterodox Academy survey

of American college students suggests that over 60% of students in 2020 (up from 55% in 2019) felt the climate on their campus prevented them from saying what they believe. A recent poll by the Foundation for Individual Rights in Education (FIRE) suggests the situation for students at MIT may be even worse. And a recent informal poll of MIT faculty found close to 80% of respondents expressing concern about their free expression.

MIT has recently convened an Ad Hoc Working Group on Free Expression. We encourage the members of this Working Group to carefully examine the history of academic freedom and free expression on campus. We urge them to bring back a recommendation for MIT to rededicate itself to the core principles that have spurred robust debate, and ensured that campus life is full of diverse perspectives and a healthy ecosystem of ideas, within a campus culture that values discussion and dissent. As a concrete suggestion, we urge MIT to explicitly adopt the Chicago Principles defending free speech at universities. And we urge everyone in the MIT community who cares about free speech, viewpoint diversity, and academic freedom to join the MIT Free Speech Alliance.

This article was written by Melanie Soderstrom '98, Eric Rasmusen '84, and Jim Rutt '75 (President) on behalf of the MIT Free Speech Alliance.

> Originally published in Volume 142, Issue 2 on February 17, 2022.

GUEST COLUMN

On Love, Truth, and Justice at MIT

Truth-telling is a foundation to Love MIT well

By Ufuoma Ovienmhada

These remarks were originally prepared for MIT's 48th Annual Martin Luther King Celebration Luncheon held on Feb. 10, 2022.

I Love MIT. Those are three words that I would usually *never* string together into a sentence.

Yet, at this moment, I find myself at the two-and-a-half year mark of dedicating my labor to MIT as the former president of the Black Graduate Student Association (BGSA) and as a student representative on not one but two different institute committees working on diversity, equity, and inclusion (DEI) and public safety, respectively. I've organized events on these topics. I've been in dozens of meetings with President Reif, Institute Community Equity Officer John Dozier, Chancellor Nobles, and others whom I all respect. In reflecting on the theme for this event, I honed in on the words "truth" and "love." I found quotes from the late feminist author bell hooks that read, "The heart of justice is truth-telling," and "There can be no love without justice." She uses a definition of Love from M. Scott Peck: "the will to extend one's self for the purpose of nurturing one's own or another's spiritual growth." With these definitions in mind, I was forced to admit that through these labors, I am committed to the spiritual, and moral, and ethical growth of MIT. And thus I do, in fact, Love MIT. It's an agape love, an ongoing, unconditional concern for the well-being of MIT, the community inside it, and those it impacts.

Ruminating further on "truth" and

"love," I came to the conclusion that to Love well, we must be willing to tell the truth. MIT's own value statement writes that we must be willing to "speak plainly about failings in our systems." So, it is in this spirit that I convey three inconvenient truths about the chasm between Martin Luther King Jr.'s values and MIT's actions.

Truth number one: The truth is MIT is an institute of higher learning and a global leader in research with a well-intentioned community, BUT, quoting MIT professor Ed Bertschinger (who was the first institute community equity officer), MIT is also comprised of a board of trustees known as "The Corporation" with its own agenda and internal politics that resists any change that would redress severe power imbalances. In my experiences working with senior administration, I've often been one of less than a handful of students on 25-30 person committees, despite students making up nearly half of the MIT population. My peers and I have fought for increased decision-making power as committee cochairs, but even in the case where we do have a student as a co-chair, we are not privy to relevant documents nor do we have decision-making power or influence on meeting times. Martin Luther King Jr. dreamed of an integration that was not merely a "romantic mixing of colors" but a "real sharing of power and responsibility." At MIT, we aren't sharing nearly enough power or responsibility.

Truth number two: The truth is MIT released its boldest Climate Action Plan in 2021, BUT it is still a shareholder in fossil fuels that continue to produce climate

change impacts disproportionately affecting Black, brown and indigenous people. I'm Nigerian by heritage. Since 2010, the Shell oil company, which MIT has received donations from, has leaked over 17.5 million liters of oil into the Niger Delta region, where my mother grew up — that's roughly seven Olympic-size swimming pools of oil. This is personal, and this is just a snapshot of the global devastation caused by fossil fuels. How can MIT hope to achieve its mission to "make a better world" while actively engaging with companies that poison the water and land in communities all over the world? This is an overt complicity in unbridled capitalism, which King despised and believed has "outlived its usefulness."

Truth number three: The truth is MIT does have a model of working with graduate students that has produced some positive change, BUT this model often moves at a snail's pace to accommodate those with the most privilege or ignores inconvenient truths and inconvenient recommendations. I'll offer the example of the yet-to-becompleted five year Strategic Action Plan to address DEI for the years 2021-2026. Wait ... isn't it 2022? The pace of change and mistreatment student leaders have experienced using existing MIT models have left over 2500 grad workers with the conviction that we need a graduate student union to secure legally-binding, lasting change. On Feb. 1, the chancellor and provost sent out an email communicating MIT's stance, that they believe "MIT's long-standing partnership with graduate students is a better path forward than unionization." To that, I will paraphrase King, who was enthusiastically pro-union. In fact, he was assassinated at a labor union-organizing campaign. He says "our needs are identical with labor's needs. That is why the labor-baiter is virtually always a twin-headed creature spewing anti-Negro epithets from one mouth and antilabor propaganda from the other mouth." As anti-negro epithets may not be as common today, I'll summarize the core of King's stance in a different way — rhetoric that is not enthusiastically pro-labor union cannot be enthusiastically anti-racist.

These three truths may seem unrelated, but they are all connected through issues of capital and hierarchy. The truth is, the bottleneck to progress at MIT is not a lack of knowledge or resources; it is an administration infatuated with wealth and intoxicated by power. It's an aversion to truth-telling, and a scarcity of agape love; it's power without love, which, in King's words, is "reckless and abusive."

I Love MIT. Those are three words that I would usually never string together into a sentence. But, I *am* committed to the spiritual, *and* moral, *and* ethical growth of MIT. I'm practicing my love by telling these inconvenient truths. If you Love MIT too, to Love well, we must be willing to tell the truth, then take palpable measures to bend the arc of MIT's history towards justice.

Ufuoma Ovienmahda is a fourth-year graduate student-worker in AeroAstro and served as a co-President of the BGSA for two-and-a-half years.

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GUEST COLUMN

Fossil fuel companies fall short on climate pledges

Federal hearings reveal that the fossil fuel industry is still misleading the public about its role in climate change

By Lauren Higgins

Hearings held by the House Committee on Oversight and Reform in September reveal the failures of fossil fuel companies to live up to their pledges on reducing their environmental impact — and why we still have work to do.

The hearings follow a year-long investigation by the Committee regarding the role of the fossil fuel industry in driving climate change. Before the hearings, the Committee released a memo documenting internal emails and guidance from several Big Oil companies — including BP, Chevron, Exxon Mobil, and Shell — that demonstrate their campaign to mislead the public while they fall short of reaching their climate goals.

These contradictions should come as no surprise, as they continue a long tradition of Big Oil companies lying to the public about their role in worsening the climate crisis.

Among the discoveries revealed in the memo, these companies made it clear that they are "devoted to a long-term fossil fuel future" and instructed employees to use intentionally misleading language when broaching the topic of climate change. For example, "Exxon and Chevron sought to

water down statements by the industry-led Oil and Gas Climate Initiative (OGCI) to 'remove language that potentially commits members to enhanced climate-related governance, strategy, risk management, and performance metrics and targets" in an apparent effort to avoid binding themselves to any climate commitments, despite each publicly stating the opposite. Additionally, internal messaging guidance from Shell "calls on employees to emphasize that net-zero emissions is 'a collective ambition for the world' rather than a 'Shell goal or target," directly contradicting their own publicized climate target. These contradictions should come as no surprise, as they continue a long tradition of Big Oil companies lying to the public about their role in worsening the climate crisis.

"My Committee's investigation leaves no doubt that, in the words of one company official, Big Oil is 'gaslighting' the public," said Rep. Carolyn B. Maloney, the Chairwoman of the Committee on Oversight and Reform. "These companies claim they are part of the solution to climate change, but internal documents reveal that they are continuing with business as usual."

Following the investigation and the release of the memo, the Committee held a hearing to examine the adequacy of the companies' climate pledges and to hear testimony from survivors of climate change-induced severe weather events.

Testimony from Raya Salter, Esq., founder and executive director of the Energy Justice Law and Policy Center and member of the New York State Climate Action Council, emphasizes the failure of fossil fuel companies to hold true to their climate pledges. Salter states that "the fossil

fuel company commitments are just frankly disingenuous. The fossil fuel lobby combats climate action on every single level — global, national, state, and regional." Her statement supports the findings revealed in the memo, reinforcing the fact that Big Oil companies are lying about their climate commitments and failing to act on the issue of climate change.

While the effects of climate change grow worse each year, fossil fuel companies continue to profit off of the crisis that they helped create.

The hearing also sought to emphasize that marginalized communities throughout the U.S. — particularly low-income communities and communities of color — bear the brunt of climate change and feel the strongest effects of the inaction of the fossil fuel industry. At the hearing, Dr. Isabella M. Weber, Assistant Professor of Economics at University of Massachusetts Amherst, stated, "Low-income households are clearly the ones that are hit hardest by the energy price explosion. They are the ones that have least means to weatherize their homes. Black and Brown communities face, on top of this, discrimination in the housing market, which means that they typically end up living in homes that are less well insulated or less energy efficient." Another witness, Jasmin Sanchez, a survivor of Hurricane Sandy and public housing resident, stated, "Climate justice is a racial justice issue. Sandy showed the inequities in our city. If you didn't have a car, you couldn't leave. If you didn't have financial means, you couldn't relocate ... I, along with many of my neighbors, were in survival mode." Sanchez's testimony demonstrates that the effects of climate change aren't something far off in the distance — they are happening right here, right now, to real people. And the fossil fuel industry is intentionally making the climate crisis worse and harming the communities most at risk.

These recent hearings made clear that the fossil fuel industry has not only fallen short of its climate pledges but has also spread misinformation and misled the public on its actions while continuing to contribute to the climate crisis and perpetuate violence against marginalized communities. Despite this, Big Oil companies continue to post record-breaking profits, with BP, Chevron, Exxon Mobil, Shell, and TotalEnergies producing a combined profit of \$51 billion in the second quarter of 2022. While the effects of climate change grow worse each year, fossil fuel companies continue to profit off of the crisis that they helped create.

So, why should we as MIT students care? The answer is simple: the MIT Corporation's refusal to divest from the fossil fuel industry means that as these companies profit off of the climate crisis, so does MIT. If MIT wants to uphold its values and take responsibility for tackling the climate crisis, it must divest from the fossil fuel industry.

Lauren Higgins is a first-year undergraduate student and a member of MIT Divest.

> Originally published in Volume 142, Issue 26 on November 9, 2022.

File Edit Options Buffers Tools Im-Python Python Help

from new_skills import *

def learnMarketableJobSkills():
 return linux, OSX, javascript, applescript, perl, python, PHP

if self.interest == True: print "E-mail join@tech.mit.edu"

---:---F1 joinTechno.py

(Python)--L1--Top------

GUEST COLUMN

We have genuine love, strength in numbers, and unity on our side

Reflecting on the GSU on the eve of our historic election

By JS Tan, Ki-Jana Carter, and Maddie Dery

A year ago, many graduate workers hadn't even heard of our union. Now we're only a week away from having a real voice on campus.

When I first heard about the unionization effort three years ago, I was immediately on board. I had been at MIT long enough to know that most people here don't have a real say in how the university works, and having a union to change that for grad students made a lot of sense. But I didn't know the first thing about organizing. I met with the other grad students who wanted a union — there were only a few dozen of us then — and I learned pretty quickly what it looked like to build a union: talking to people, finding out what mattered to them, and taking collective action to move forward together.

I wasn't a very outgoing person; I didn't like meeting new people, and I was afraid of embarrassing myself in conversations with people. But I wanted to try anyway, because I felt like I couldn't just stand on the sidelines while other people did the work to build this thing that I really wanted. So I started talking to my friends and coworkers, and they started talking to their friends and coworkers, and in September 2021, we had over 1,000 people at our launch rally.

24 hours after we launched our union, 25% of graduate workers had joined. Just a few weeks later, a clear majority had signed their union cards. In workplaces with more worker-friendly labor laws, that would have been enough to win recognition. Now, over 2,000 graduate student-workers have signed our vote yes petition to publicly support our union.

Reaching this point has taken a lot of hard work, and MIT's administrators haven't made it easy. Unfortunately, they have a lot of advantages over grad workers. They use a dozen different soapboxes to scare grad workers from taking a single step out of line. They hand out talking points to confused faculty whom they order to do their dirty work for them. They have a war chest to pay for fancy lawyers so they can try to disenfranchise a fifth of grad workers. But we've overcome every single one of those obstacles.

For every anti-union administrator, there's a thousand grad workers who can't afford rent, who can't take time off to see their families, who can't get access to the equipment they need to do their research. And those grad workers have shown that they are ready to vote YES for our union. MIT has money and cheap tricks on their side — we have genuine love, strength in numbers, and unity on ours.

Making our hopes a reality

When deciding to come to the Media Lab, I was told that we were about to embark on a radical research experience different from any other research institution in the country. I was told that research was going to be fun and flexible and that we would have the agency to freely explore our passions in our work. However, once I joined the Media Lab, I found that these had been false promises. My principal investigator (PI) was chronically late to meetings or would miss them entirely without warning. At the same time, he micromanaged me meticulously, sporadically calling me to ask why I wasn't appearing online on Slack during the workday. It quickly became clear that I was nothing more than a code monkey for a PI who didn't care at all for my development.

I repeatedly brought these issues to a Media Lab administrator. She was nice and supportive, but the interventions she could offer were limited. My situation continued to worsen, so we escalated the issue to my department's academic head - who was not only good friends with my PI, but also the very man who had hired him. Eventually, every single research assistant (RA) in my group raised concerns about my advisor, but our working conditions remained unchanged.

If I wanted to continue at MIT, I needed to change my PI. I quickly found that this wasn't an easy thing to do in my department, which was especially cagey when it came to funding. The department went back and forth for months, and with each passing month, I felt more and more precarious. Ultimately, out of luck, I was able to join a new lab with a PI who actually cares about my work.

No one on this campus should have to face the anxiety I felt during these long months. Our union has since fought for and won guaranteed transitional funding for RAs in precisely the same situation I was in. Had this change come one semester sooner, my security at MIT would never have been left to the whims of my department. This is why we need a union: so we can secure this kind of institute-wide policy change in a union contract.

As I started to organize with our union and have conversations with fellow graduate workers at tabling sessions, office walkthroughs, and dorm visits, I learned firsthand that funding security was just the tip of the iceberg. From having a fair grievance procedure and affordable housing to

simple things like dental care and proper parking access, we have so much to fight for and so much to win.

Changing MIT for the better is just the tip of the iceberg; we are organizing a union for a better world.

Over the last six months, we've been inspired by the incredible organizing that has taken place on this campus. We have learned so much from being part of this campaign. We've built a vast network of union reps, created a broad and inclusive organization by reaching out to workers from every corner of this campus, and supported each other in the face of MIT's aggressive anti-union campaign.

For many of us, these lessons won't end at MIT. We are scientists, technologists, designers, artists, writers, and tinkerers, and we will spend our post-MIT careers working at cutting edge technology institutions all over the world — from global biotech firms like Moderna or Pfizer to bootstrap startups building the future of the internet. We're inspired by all of our colleagues who will move forward together not only to win our election, but also to bring the community and solidarity that we've built over the course of this campaign to workplaces all over the world.

JS Tan is a second-year graduate student at the Media Lab.

Ki-Jana Carter is a fifth-year graduate student in Materials Science and

Maddie Derry is a fifth-year graduate student in Chemical Engineering.

> Originally published in Volume 142, Issue 6 on March 30, 2022.

GUEST COLUMN

Our successes together MIT's partnership with the GSC and other student representatives has led to many substantive improvements for graduate students over the past five years

By Melissa Nobles and Ian Waitz

On April 4 and 5, some of MIT's graduate students will participate in an National Labor Relations Board-run election to determine whether to form a union associated with the United Electrical, Radio and Machine Workers of America.

Whatever the outcome of this election, all of us who lead MIT will continue to support every one of our extraordinarily talented students. Like every institution, we will always have room for improvement. Those of us who have devoted our lives to MIT and making it a place of excellence and belonging for generations of our students, are deeply aware that we must always strive to do better. We respect and admire all of our graduate students and are committed to ensuring that each of them thrives during their time her

Indeed, it is our deep interest in our students' work and success that has led us to embrace roles in student support and academic life, rather than focusing solely on our teaching and research. And it's why we're invested in strengthening MIT's uniquely effective collaboration with its student leaders — an approach that has been advocated by the Institute's student community, is in keeping with MIT's spirit and values, and informs MIT's work to create a more caring and supportive environ-

Over the past five years, our direct partnership with graduate student leaders, including the Graduate Student Council (GSC) and other representatives, has led to many substantive improvements for MIT's graduate students, including:

Greater financial security for all students: MIT's cost-of-living-based stipend increases — part of a process led by the GSC - have outpaced those at nearly all private universities with graduate student unions. Throughout the pandemic, MIT offered its students generous assistance with housing costs, moving expenses, and other financial

MIT has invested in students with the troduced new programs through which we have allocated approximately \$1 million in grants for graduate students with families, students on short-term appointments, and doctoral students needing longer-term support.

MIT has provided enhanced health and wellness support: MIT Medical continues to offer excellent, robust health insurance

options with premiums that are on par with or less expensive than our peers and has expanded copay-free access to behavioral health care outside of MIT Medical from 12 visits per year to 52.

MIT has championed its international students: In 2020, MIT joined with Harvard University in successfully filing suit against the U.S. Department of Homeland Security to rescind a federal policy that would have barred international students on F-1 visas from taking a full online course load while studying in the United States. And to help manage the challenges that the pandemic presented for its international graduate students, MIT allocated \$5.8 million to facilitate roughly 1,300 remote international appointments. This ensured that students did not face interruptions to their academic and research progress, and were able to continue their studies and research from

MIT has worked to build a more inclusive, supportive, and diverse community: It has hired school-based diversity deans; increased staffing in the International Students Office, Career Advising and Professional Development, and GradSupport; added an employee to provide dedicated support for veterans and created a

Grad Families Office; invested additional resources in its Violence Prevention and Response and Institute Discrimination and Harassment Response offices; refined anti-retaliation policies; provided guaranteed transitional funding for students who wish to change research advisors or groups; and offered additional mentoring and harassment-prevention

MIT has fostered students' personal and professional growth: It has enhanced advising and training, offering more than 40 workshops and panels in partnership with 15 academic and administrative departments and developing more focused career fairs and networking opportunities.

As we draw closer to the election April 4-5, now is the time for graduate students to become as informed as possible on these matters. It is essential that every eligible student make it a priority to vote: This election's outcome will be determined by a simple majority of those who vote, but will be binding on both voters and non-voters in the proposed bargaining unit.

> Originally published in Volume 142, Issue 5 on March 17, 2022.

Have something to say? Write opinion for The Tech!

opinion@tech.mit.edu



In browsing last year's issues of The Tech, I was confronted less and less with an onslaught of revised COVID polices, statistics, and health recommendations, and more with refreshingly diverse examples of student engagement and activism.

The Graduate Student Union's herculean efforts to obtain recognition culminated in a landslide election victory; MIT Divest pursued a lawsuit with the Massachusetts Attorney General's office, complete with sit-in protests; and student advocates fighting for relief in Ukraine championed a cause of utmost importance to the campus and larger community.

On the lighter but equally moving side, this year saw a return to public campus and 24/7 Banana Lounge access, beloved traditions like the aquarium trip — adapted for the Class of 2024 — and the awe-inspiring MIT: Regressions, a sweeping documentary of our past that motivates us to reflect on our vision for the future.

It would be disingenuous to say the pandemic's effects are obsolete: student groups and their leaders have struggled to generate pre-2020 levels of enthusiasm and involvement; and relics of the pandemic such as closed campus and turnstiles

persisted through this year.

But it is wonderful and humbling to realize that the student activism of the past three years is not merely a symptom of the COVID-era, but an enduring quality inherent to MIT student leaders, and something here

As the news editor for Volume 142, I've had the privilege to write about, read about, and edit these stories of passion for change, and I'm honored to have shared them with all of you.

> Srinidhi Narayanan '24 Volume 142 News Editor

LEGEND

Spring LINE Summer LINE Fall LINE Winter LINE

MAIN SUBWAY LINE KEY BUS ROUTE

MAIN LINE STATION TRANSFER STATION

NOW EXITING 2022

MIT's Oldest and Largest Information Transit Authority thetech.com

INSTAGRAM

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MITCPA moves to federal

mediation for negotiations Demands for their three-year contract include an increase in wages consistent with the rise in cost of living due to inflation and medical

Student center renewal an-

nounced to begin Jan. 2023

The student center will be fully

closed from early May to mid Au-

insurance.

2022

FEBRUARY 2022

NEWS IN

FEBRUARY 2022 — FEBRUARY 2023

MIT alumni regain access campus buildings

The new policy was enacted after a survey sent to MIT community members to participate in a survey on campus access.

TEDxMIT holds conference The biannual event titled "Natural and Artificial Intelligence" was held in collaboration with CSAIL.

Bad Ideas Weekend 2023

The event included baking 2ⁿ cookies; the Green Building Challenge; and a Python Bee.

DEC

Brent Ryan and Anne White named associate provosts

JANUARY

2023

Ryan and White serve as MIT Associate Provosts; White is also appointed Associate Vice President for Research Administration.

Ben Bernanke PhD '79 wins MIT alumni regain access **Nobel Prize in Economics** campus buildings Bernanke, along with Douglas W.

The new policy was enacted after Diamond and Philip H. Dybvig, was a survey sent to MIT community members to participate in a survey on campus access.

serve as MIT's president, after President Emerita Susan Hockfield.

Sally Kornbluth named MIT's 18th president Kornbluth is the second woman to

MIT Museum in Kendall opens

The MIT Museum officially reopened to the public after relocating from Central to Kendall.

08

AUG 2022

Class of 2024 attends Oceantation

Oceantation, an event intended as a substitute for the traditional freshman class aquarium trip, was postponed for '24 due to COVID-19.

awarded the prize "for research on

banks and financial crises."

Dance party celebrates Reif's presidency

Over 10,000 community members attended the Dance party, which celebrated Reif's tenure as MIT's

> MIT Graduate Student Union holds rally

The MIT Graduate Student Union held a rally ahead of its bargaining meeting for its first contract with the MIT administration.

Burton Conner reopens

After a two-year long renovation, Burton Conner reopened to residents.

Banana Lounge reopens

The Banana Lounge reopened to students on Sept 2, with hours restricted from 7 a.m. to 11

Disorientation brings gether Class of 2023

Banana Lounge renews 24/7

The lounge reopens 24/7 after a

series of discussions between the

Banana Lounge team and the Di-

vision of Student Life (DSL).

A sold-out Disorientation for the Class of 2023 took place at the New England Aquarium.

MIT hosts first in-person Fall Career Fair in three years

The in-person Fall Career Fair was held, attracting over 4000 attendees and 250 companies.

> MIT Strategic Action Plan Released

President L. Rafael Reif released the MIT Strategic Action Plan for Belonging, Achievement, and Composition.

> Working Group on Free Expression releases statement

The Working Group on Free Expression recommends that MIT strengthen its commitments to freedom of expression and academic freedom

MIT limits PCR COVID-19 testing

Effective July 1, MIT no longer offered PCR testing to community members not experiencing CO-

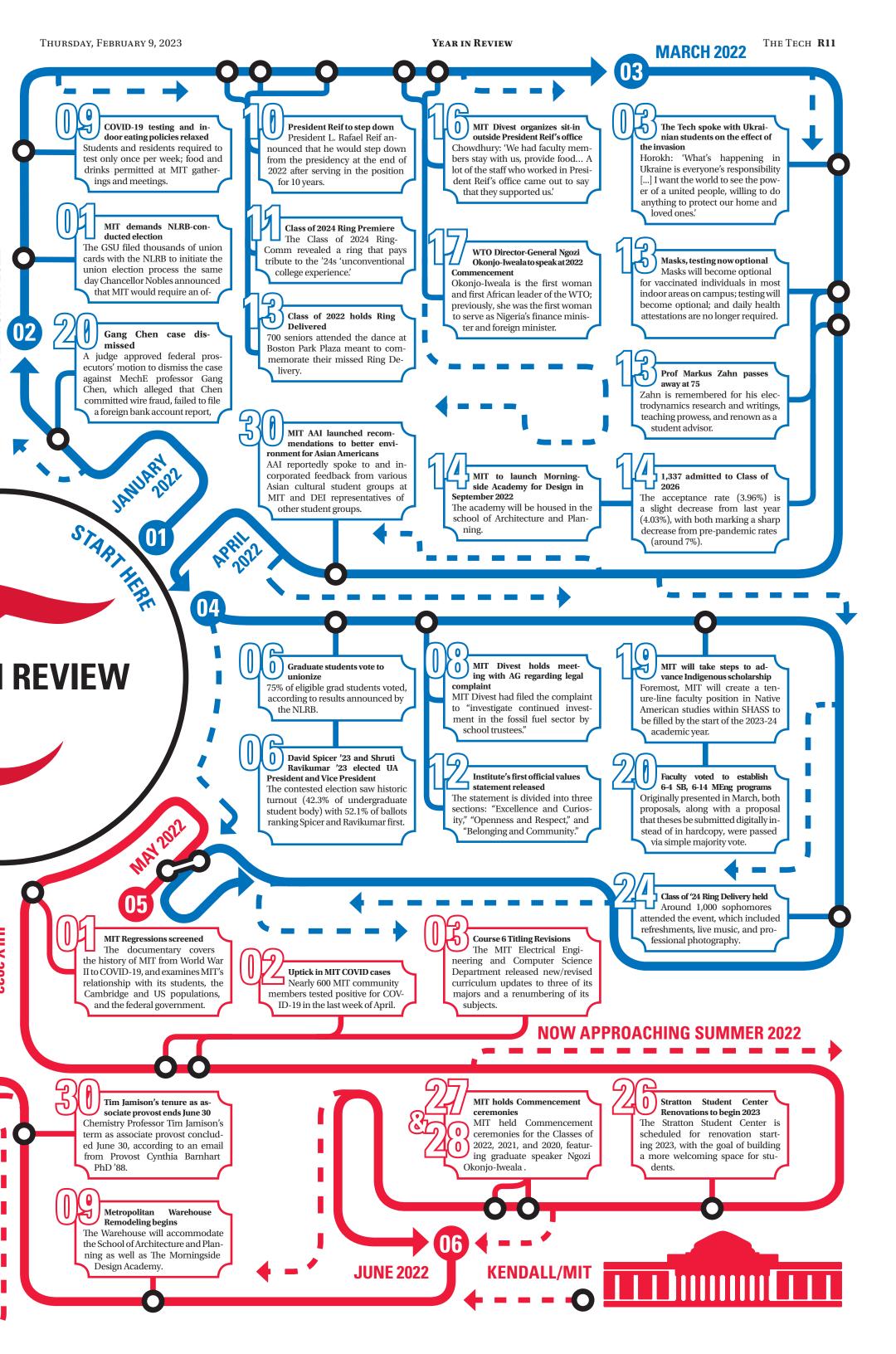
MIT encourages students to test for COVID-19

MIT recommends that students take a COVID-19 test within 48 hours of arriving on campus.

MIT continues to restrict campus access

In a community update call Aug. 8, MIT reaffirmed a 'closed' campus policy for the fall.

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On need

How MIT's financial aid system fails students with noncustodial parents

By Annie Montefiore

If you ever find yourself in an MIT Admissions information session, the last slide will have three phrases on it: Need Based, Need Blind, and Full Need. This is MIT's financial commitment to its students: (1) there are no merit-based scholarships, so all financial aid is only based on need; (2) undergraduate admissions does not take financial need into account while reviewing applications; and (3) MIT will meet 100% of demonstrated need. I wish I could tell you this was true, and it may well be for most students. The phrases sure are catchy.

I. Need Based

According to the MIT Student Financial Services (SFS) Financial Aid Glossary, need based "means that we award financial aid entirely based on your *family's* financial circumstances."

Need based should mean that when assigning financial aid awards, SFS gives you aid based on how much you need it, you being an individual MIT student whose name shows up on MITPay. You may pay yourself or your parents may pay for everything, but ultimately, the check is under your name. Simple enough, right? SFS, however, determines your award based on your family's ability to pay, regardless of their intent to contribute or your access to their funds. It raises the question: who counts as family?

When I first opened the aid application my senior spring of high school, giddy about my magical college future, one question took me by surprise.

Do you have a non-custodial parent?

I do. My biological mother gave up physical custody of both my brother and me when my dad filed for divorce. I was two years old at the time. It isn't "normal" for parents to give up custody of their kids — in the sense of the idyllic American nuclear family with 2.2 kids playing behind a white picket fence. In fact, the California standard is a 50/50 time and responsibility split between parents. Given the abnormality of my family situation, it is reasonable that there should be special accommodations in the financial aid application process.

For the sake of privacy, let's call this woman who gave birth to me Leanne. I will never know exactly why she decided to give up custody. Maybe she knew in her heart that she'd never wanted children, and it was my dad's life calling to be a good father. Maybe she justified it because he made more money than her. Maybe she was scared that she couldn't be there for me if something went wrong. Regardless, I didn't know about the legal arrangement for most of my childhood because we all did our best to play the roles expected of a reasonable split family.

For 11 years, until I was in the eighth grade, my parents shuttled me back and forth between their houses like a "typical" child of divorce. There were "Mommy Mondays" — dinner with Leanne and then back to Dad's yellow house in Berkeley before bed. Every other weekend, my biological mother would pick up me and my brother in her Subaru Outback and take us to her place in whichever suburb or smaller town she moved to last. There were at least six different apartments or homes in those 11 years.

I didn't find out about the custody arrangement — that I wasn't required to live at her house — until my last year of middle school, when we became estranged. Or, to put it in a less passive way, I decided never to speak to her again. Only then did my dad and step-mom, who I call my mom, realize it was important for me to know that I wasn't actually required to live with Leanne. I still haven't spoken to her, not for all of high school or college, even now in my senior year. The only intentional contact I've been forced to initiate was through the MIT financial aid process.

See, MIT requires noncustodial parents to submit their financial aid information through the College Scholarship Service (CSS) Profile, a College Board form designed to consolidate tax documents and income declarations. The wrinkle is, Leanne is contributing a whopping \$0 to my education. She is paying nothing toward my housing nor food. No child support. Nada. I wouldn't want it any other way, given my desire to not have any association with her. If she is not paying anything to-

ward my education, I have no contact with her, and she does not have custody over me or claim me as a dependent, then why is her information necessary to determine my financial need?

MIT and its peer institutions have varying ways of approaching noncustodial parents in their informational material. Brown University, for instance, says that should parents "discontinue their financial support for reasons other than ability to pay, Brown will not assume the parental responsibility for financial support of the student." Essentially, though universities are in loco parentis in the eyes of the law, Brown would not want to be my mommy. Or make up for her mistakes, I suppose. They're saying that the student's actual ability to pay is not their concern. The reality of that student's access to financial resources does not matter, as if legal definitions of parents on birth certificates are the same as cash in hand. MIT is not so explicit in its dismissal of students in this circumstance, instead giving the tame, even amiable, reassurance that if "you have trouble submitting financial information because of a previous or ongoing separation or divorce please contact us, we can help. We may be able to waive the need for financial information from your noncustodial parent," Seems fair enough, but what are the requirements for such a waiver? What counts as "trouble submitting"? MIT's website directs you to the CSS Profile Waiver Request form, which says that an exemption may be made with:

- Documented abuse situations involving you and your noncustodial parent.
- Legal orders that limit the noncustodial parent's contact with you.
- No contact or support ever received from the noncustodial parent.

Reading these requirements for the first time flashed a memory behind my eyes of standing in a prim cardigan in front of a judge as a pre-teen, trying to avoid eye contact with the woman spilling lies about our relationship. This never actually happened to me, though I thought about it plenty. Leanne threatened to take me and my parents to court when I initiated the estrangement, but I got us out of it by attending one tear-stained family therapy session. Leanne sat unmoved when I said I felt like she was stalking me by showing up on my dad's front porch after I said I didn't want to see her anymore. But that doesn't fall into the neat financial aid form bucket. I couldn't meet the other conditions either. Without the "court documents," "legal orders," or "third-party documentation," required for a waiver, I was screwed. This boilerplate form and its strict, institutional requirements were not reflective of the messy, complicated needs inherent to the type of family where a noncustodial parent exists in the first place. Shaken by the strict, official language of the form, my dad and I decided to try to get Leanne to submit her financial documents rather than

After I entered her email into the College Board website, it automatically sent her a request to fill out the forms. She wrote directly to me, despite my repeated pleas throughout the years for her not to do so:

"Now that you have had a few years to learn more about how to be kind to people and respect their feelings, I am sure you will understand why someone who has been repeatedly rejected might not want to do a favor for you. It is up to you to remedy the situation you created."

The act of reaching out, even for a few financial documents, opened the door for guilt-tripping. Leanne has a pattern of financial manipulation, withholding funds in exchange for attention. The same thing happened a few months before the estrangement, when Leanne told me — then 13 years old, remember — she was moving all of my brother's college savings to my account because he didn't spend enough time with her. Right after I broke off contact, she transferred the contents of my savings account to her personal coffers as punishment for leaving. Writing this essay, I feel a pit in my chest just rereading those words, though the threat is long since passed. Could the powers-that-be behind the financial aid system not have anticipated that forcing interaction with noncustodial parents might create channels for harmful family members to sneak back into their children's lives? Luckily, my

father took on the bulk of the responsibility for the situation, despite his own hesitance to interact with a woman he divorced for a reason. I found an email from my dad to Leanne on Nov. 27, 2017, which reads,

"Annie forwarded us your email trying to pressure her into family therapy as a condition of completing financial aid forms for her college applications. Annie has no desire to engage in family therapy. I hope you will reconsider and complete the forms — it will make everything much simpler. This kind of attempt at pressure is no way to repair a relationship, if that is what you are trying to achieve."

Leanne did eventually fill out the forms that year. Her third income beyond that of the parents I live with artificially deflated the financial need on my application, but I still received aid that year. The key point here is that for all the pain of reopening contact, the system set me up to receive less aid without regard to Leanne's lack of expected financial contribution. SFS took my "family's financial circumstances" into account, but their broad definition of family included a woman who is more of an angry ghost than a functioning parent. I'm sure it didn't hurt that this choice was better for the university's bottom line.

II. Need Blind

The SFS Financial Aid Glossary states that prospective students "are not disadvantaged in the undergraduate admissions process because of their financial need. We are one of only six schools in the U.S. that is need blind and meets full need for all students, foreign and domestic."

My financial situation did not affect my acceptance to MIT. The admissions office fulfilled its promise of keeping my finances separate from the application reading process. Yet, SFS itself was blind to my need for guidance, compassion, and understanding as the child of a noncustodial parent.

What they saw: discrepancies between numbers on files and missing or blurry documents.

What they asked for: my father and I to get back in touch with Leanne over and over and over again to correct the mistakes.

What they didn't see: me tearing up and trying not to let my dad hear it in my voice when I told him on the phone that, yet again, for the third time, we'd have to go back and ask her for a correction.

SFS didn't see that we couldn't figure out how to hide my email address from Leanne on the College Board website, so she tried to reach out to me each time the web portal alerted her it was that time of year again. I set up an inbox filter that automatically deleted any messages from the three email accounts she set up. SFS didn't see the cards she sent to my dorm address, which no one in my family would have told her, as if to say that she could always find out where I lived. Was that address on the financial aid forms? I don't know. Other schools promise to avoid this situation. The California Institute of Technology writes on their website that in cases of divorce, "personal information, such as contact information and Social Security numbers, will... not be shared with the other parent" SES should ensure that all finan cial aid systems they use are set up to fulfill this promise. Sensitive information should be kept confidential not just between divorced parents, but also between parent and student when applicable. Making oneself vulnerable to stalking should not be a condition to apply for aid.

SFS didn't see any of this because they did not establish any familiarity with my family's situation. We were left blind to their inner workings because the office was opaque to us. Faceless, nameless, uncontactable. Each time reaching out was a test of will power. When we called my assigned financial aid counselor my first year, he didn't pick up or return my dad's voicemail. The following years were smooth enough. Senior year was a disaster. Over the course of four months, my father and I suffered through convoluted, misinformed, and unhelpful email chains with a string of financial aid officers. The following section details these exchanges, though the specificity is provided as evidence, not entertainment.

It began with a form email that said, "We are writing to let you know that your financial aid application for the 2021–2022 academic year is incomplete."

The email didn't include the actual problem but instead provided a link to an application portal. The first time, the portal told me a form was missing from my noncustodial parent. I looked on the College Board website, saw that it was already submitted, and emailed SFS with a screenshot of the page saying the document was uploaded. SFS responded with a form email saying they'd reply shortly. A day and a half later, they told me the document was unreadable, and Leanne would need to resubmit it. I wrote to my dad with an apology, asking if he could reach out to her again. Each time I had to ask him to reinitiate contact, I felt the thud of guilt in my stomach.

An entire month and a half later, I got another form email from SFS saying something was wrong with the application. This time, the portal simply said there was an unspecified discrepancy in my application, and I'd have to contact them for information. I reached out. Four days later, SFS replied that my step-father's information was left off of the application. I don't have a step-father. My first instinct was to wonder whether SFS was seriously the one telling me my biological mother had remarried. If that was the case, I didn't want to know, and why would his information even be necessary for my application?

After another back-and-forth, SFS clarified that it was my step-mother's information that was needed, and I notified them that I submitted it. At least this wasn't really a discretion of personal details about Leanne's life. Three weeks later, I wrote again to SFS saying that I had still not received aid, though it was months after the expected release date. Once again, they replied that my step-parent was left off of my forms. I directed them to look back in our email thread to see that I had already fixed the issue. Eleven days later, I emailed them again asking for a response about whether the issue was fixed. A different financial aid officer, one not assigned to me, replied that two of my noncustodial parent's forms were now missing. I sent back screenshots showing the documents were uploaded months ago. SFS replied that the documents had a discrepancy, not that they were missing after all. The fact that they could confuse the two in an email to me suggests that they were scarcely glancing at my files. My father replied,

"Annie is estranged from her noncustodial parent...It is extremely difficult for Annie to communicate with her and just getting to this level of documentation has been a major effort."

He inquired whether they could continue the calculations despite the discrepancy given our unique situation and suggested that they call him if there was a problem. A third financial aid officer replied, without explaining why the name behind the email kept changing, that this wasn't possible. The officer continued,

"Now, I can tell you that just looking at the numbers that came through without having been reviewed, it looks like Annie may qualify for some MIT Scholarship aid this year, though likely not much...So it's up to you if you want to continue with the application process, or if you want to just have us review Annie's FAFSA so we can work with you on loan eligibility."

This chain of emails shows a lack of attention to detail, failure to follow up, and discontinuity between people administering support. The final email makes me the angriest. The financial aid officer essentially said, if it's so difficult for you, maybe you shouldn't apply for aid at all. The numbers would be small, in part because of that third income on the application from Leanne, so apparently my family's financial need wasn't worth the effort. It was too complicated for an office at a school whose motto is mens et manus, "mind and hand." Our university's mission includes a shared commitment to practical problem solving based on critical thinking, so all offices on campus should strive to meet that ideal. When my situation didn't fit the neat institutional boxes, that should have provided an interesting challenge to overcome for employees whose work must often seem tedious.

Of more importance is that it was a challenge involving complex family dynamics, not just numbers and dollar signs. Real people were involved and experiencing pain at each step of the process. When we see people in difficult situations, the

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On Need, from Page R12

instinct should be to reach out, clarify the problem, and provide whatever help is possible. In the four years since I first applied for aid, I never heard a voice or made eye contact with a financial aid officer. What impact does it have on students to explain their stories again and again to a faceless email address hiding a rotating cast of financial aid officers? I have no idea how many people read my emails. Did I owe them my story? Imagine if it had been different. Imagine if when I first presented the difficulty of reaching out to a noncustodial parent, SFS responded with compassion and a phone call. Imagine if they provided all of the relevant information to resolve the problems with my application from the outset, so the process didn't stretch over months. Imagine if I hadn't been required to reach out to Leanne in the first place.

While little scholarly literature addresses the question of noncustodial parents and college financial aid, Ohio State University professor Kaprea Johnson advises college counselors to consider "the time since (or if) there was contact between the student and parent; if a parent has a history of mental illness, drug or alcohol abuse, or incarceration; or if the whereabouts of the parent are unknown." [1] MIT makes the first step toward this with the College Board waiver form, but that document does not include directions for students who have had contact in the past, but not in a long time (eight years now in my case, greater than a third of my lifetime). It also establishes the high barrier of legal documentation and third-party documentation for proof of hardship.

Johnson's article continues that universi-

ties should recognize that noncustodial parents may not be willing to pay toward their child's education "despite the institution's assumption that he or she will." The whole financial aid system is built on this assumption, based on out-dated ideas that an American family includes two parents who feel responsibility to provide for their children. If SFS's goal and mandate is to ensure that cost of attendance will never be a barrier for a qualified student to study at MIT, it is senseless to exclude those students who must take greater personal responsibility for paying for college through no fault of their own.

Furthermore, Johnson recommends that financial aid officers refer students in complex familial situations to mental health services on campus. When knots of stress took over my shoulders and I felt like other MIT students could never understand this situation, a direct referral to MIT Mental Health and Counseling to coach me through the application process would have been invaluable.

Recently, I walked into the SFS office to pick up a COVID-19 federal relief check. I asked the receptionist if there was a way to provide feedback to her office. She looked confused, so I rephrased the question. "Not that I know of," she replied. "You can always email us." This solidified my suspicions. SFS does not really see students, nor do they want to.

III. Full Need

The SFS Financial Aid Glossary states that full need "means that we meet 100% of your family's demonstrated need through scholarships, grants, and student employment."

Now, here comes the big reveal: I'm not on financial aid.

I have federal work study designation, but

no scholarships or grants for me this year. My family decided to withdraw our application. Instead of getting an MIT scholarship, we took out tens of thousands of dollars of loans under my name. Because I come from a financially stable background, I trust that they will be paid off. Or rather, my dad will pay them off. I already paid over \$30,000 toward my education and college expenses by choosing cheaper lifestyle options (no meal plans) and contributing earnings from campus jobs and internships. I'm graduating in seven semesters instead of the typical eight to save money. MIT made the same promise to me as it did to all other undergraduates: need based, need blind, full need.

They didn't deliver. I will be fine. My parents will be fine. But what about the students in my situation who are also reliving childhood trauma each time they are required to get back in touch with absent, neglectful, or abusive noncustodial parents? What if those students can't afford to give up? Does SFS believe that those students are deserving of aid? Regardless of my own financial situation, did my dad and I have to go through this bureaucratic downpour just to satisfy inane application requirements?

I'm writing this because I don't let this story out often. I'm writing this because I'm angry. I'm writing this because I am tired and graduating, and I love MIT too much to not work out our issues. I'm writing this because I can't let it happen to someone else.

So what happens next? To my fellow students reading this essay, I ask that you refrain from making assumptions about your classmates' financial situations, even when you find out their financial aid status. I can't be the only one here navigating a relationship (or lack thereof) with a coercive family member, while taking on personal financial

responsibility. The greater agents in this story, however, are the administrators with the power to change MIT SFS.

To them, I ask that SFS streamline their communication and recordkeeping process to prevent the misinformed volleys of questions and half-answers that characterized my email exchanges with them. They should rewrite the language around noncustodial parents to encourage students with unusual situations that don't include court documents to talk through their options with a financial aid officer. In fact, maybe they shouldn't make students prove their trauma with court documents to begin with. And they should also pick up the phone and respond promptly when you do call.

In addition, MIT should fund research on the experiences of students with noncustodial parents and how it affected their ability to pay for college. How many students did not apply or withdrew their applications because the burden of obtaining information from their noncustodial parent was too much or even compromised their safety? How many fewer families would be burdened with college debt if extra documents were not reguired in cases where there is no contact between student and noncustodial parent? MIT SFS should then change their policies accordingly and encourage their peer institutions to do the same. Only then can their promise of need based, need blind, and full need be more than a marketing slogan.

Editor's note: An exception was made to publish this piece under a pseudonym, in order to protect the identity of the author and to remove identifying information of those involved in the story.

Originally published in Volume 142, Issue 12 on February 17, 2022.

 $[1] \ Kaprea\ F.\ Johnson.\ (2020)\ Symptoms\ of\ Anxiety\ in\ College\ Students\ and\ the\ Influence\ of\ Social\ Determinants\ of\ Health.\ Journal\ of\ College\ Student\ Psychotherapy\ 0:0,\ pages\ 1-16.$

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CORRECTIONS

In the previous issue of *The Tech* published last week, the photo was wrongly attributed to Colin Clark. In actuality, the photo was taken by Kate Lu.



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ARTS IN REVIEW

2022 was a return to normalcy. Restaurants in Cambridge bounced back with sit-in dining, theaters teemed with new releases, and students at MIT returned to launching performances and other creative initiatives, from Shakespeare plays to a local summer program teaching game design.

The Tech's Arts department has continued to thrive, with our writers, new and old, covering everything from MIT Asian-American Initiative's second annual zine release to the opening of Boston's much-anticipated Blue Ribbon Sushi. Our writers this year in particular enjoyed the return of Blue Man Group to stage and settling longstanding debates among Boston foodies — Tatte or Flour, Pepper Sky or Mae's.

> — Mindy Long '23 & Erika Yang '23 Volume 142 Arts Editors



LIVE ENTERTAINMENT

Blue Man Group splashes into rhythm A dazzling theatrical performance by three actors in bald caps and blue makeup



A Blue Man bounds across the audience during a production in the Charles Playhouse.

By Ellie Montemayor PRODUCTION EDITOR

A faint but heavy pounding noise can be heard on the southern edge of Boston's Theater District, an unmistakable sound that has shaken the walls of the century-old Charles Playhouse theater year-round for almost 30 years. A rave? Perhaps. Maybe just a loud bar? It's no surprise that a rowdy atmosphere is ever-present in one of the many cabaret-style nightlife attractions that the district presents. But distinct from the other venues in the area is the form of merriment that the theater presents — a startling but enticing mix of lighthearted music, laughter and surprises.

Ladies and gentlemen take a moment for you to note the emergency exit signs. In the event of an emergency, please leave your chairs and make your way to the emergency exits. Again, please leave your chairs in the theater — they are bolted to the floor. Just consider the energy it would take to remove them, and they probably won't match your personal decor in any way.

As the theater sits in darkness at the beginning of the show for a nearly 10-minute opening routine, the pounding noise morphs into a rhythmic drumming beat. Then two. Then three. The opening performance continues adding elements, introducing the main features of the show - lights, paints, drums, and the audience itself — and its core theme: the determined inanity of three speechless so-called "Blue Men" as they navigate their way through the 90-minute runtime of the concert-play amalgamation that is the Blue Man Group.

The show merges together extended sequences of live instrumental techno and psychedelic rock with performance art involving paints and marshmallow sculptures, all cobbled together in a storylike structure as the three wide-eved but resolute Blue Men take their childlike determination through a series of routines

that showcase and deconstruct the world through their eyes.

The set itself is visually and practically stunning, a tailored stage equipped with the many props that the characters interact with, from spinning paint canvases and three Blue Man-sized smartphone displays to their signature Drumbone, a paint drum and thongophone instrument.

Actor Kean Haunt, who has been playing a Blue Man since 2018, noted that the strangeness and resulting uniqueness of the show comes from the Blue Men's onstage personas.

'The character doesn't speak. You have to be very expressive with just your body, and you get to really play with all of the implicit body language stuff that is active in everyday life and interactions. It really comes to the forefront in a Blue Man Group show when you're not able to use words and yet you have to carry along a story and make sure the audience is there with you, understanding what you're trying to put across," Haunt said.

Each production features three distinct actors in bald caps and blue makeup — the eponymous Blue Men — interacting with both each other and the audience in a multitude of ways. While the similarities in the ways their innocence manifests in the real world may suggest some inherent sameness in their personalities, each of the three personas is actually rooted in a different facet of the human experience.

"Throughout the show, as the pieces unfold and you watch how each individual handles the new information that's coming out, you start to recognize the little differences [between the characters] ... We sometimes talk about if the Blue Men have each been handed different parts of the manual for being human. They've each been handed an incomplete copy," Haunt said.

Accordingly, the way the Blue Men fulfill the expectations set in these manuals lead them to their own individual personalities.

"Generally, the left Blue Man has the most information but being kind of mischievous inside, uses that to toy with the other ones a little bit ... The right Blue Man is a little bit more action-oriented, a little more courageous, more game to just try something ... The center Blue Man has the least information and is the guy in the middle trying to hold these two competing energies together," Haunt said.

From a storytelling perspective, the dynamic between the three naturally gives rise to their different hijinks. But from a technical perspective, the necessity of keeping a solid flow throughout the show and allowing the characters to realistically respond to their situations poses an interesting challenge to the three actors as they have to keep on the same pace with one another and remain within that dynamic as they respond to different obstacles, interruptions and situations that emerge during the show.

A balancing act then has to come with every show between maintaining the script and simultaneously being ready to abandon it at the slightest change.

The three silent Blue Men that star in the production are like a 21st-century Moe, Larry, and Curly, drawing inspiration from those kinds of silent-era slapstick-style comedy routines but also building on the concept. Even within the show itself, innovation has to take place continuously - a necessity to keep up with changing audiences as the worldwide performance group pushes past over three decades of production.

"The script of the show is very heavily annotated by every Blue Man who has come in and learned the role and then passed that onto another person. So, that's a really interesting thing that even if you're to write out, beat for beat, what's supposed to happen, there's a lot more beneath that," Haunt said.

Much of this show-by-show variation and improvisation as well as the more overarching gradual alteration with the show's script comes from both the differing styles and dynamics that each Blue Man brings to the show and the unpredictability of the actors' interactions with their audiences. In the Boston group, there are six actors that rotate in and out of each production, with Haunt playing either the left or right Blue Man when performing.

A staple of the show's current production is the routine "The Match," which was developed in Boston - at around the time Haunt joined the Boston group — and later spread to the other productions.

"[In 'The Match,' we] go out into the auence. There's this sort of weird couple of minutes where we're just walking around, taking in the people to try and find two people who we think would be good to play with. Then we bring them up, and we do this piece that's scripted but a lot can go wrong because the two audience members we get — they don't know the script. Sometimes, they have their own ideas," Haunt said

This kind of joyous uncertainty and gowith-the-flow attitude drive the show at its very core and allow its nonsensical lightheartedness to take centerfold. The Blue Men, in all their innocence and curiosity, present another way of seeing the world through a kaleidoscopic lens.

"The Boston Blue Man Group has a reputation in the company as being a big family, and I think that has really proved true. People come in and are genuinely excited to do their jobs and put on a show and see what's gonna happen each night. I got into theater to hang out with my friends — that's kind of what's happening now, so it's been really great," Haunt said.

> Originally published in Volume 142, Issue 27 on November 16, 2022.

Forgotten no more: the Asian Americans of MIT

The Asian American experience is the sum of all Asian American experiences

Rooted: Solitude and Solidarity

By the MIT Asian American **Initiative**

Released Sept. 7, 2021

By Mindy Long ARTS EDITOR

Overlooked. Whitewashed. Abused. Asian Americans have often been forgotten in the American fabric. With the start of the COVID-19 pandemic in 2019, however, they were suddenly thrust into the national spotlight: "Coughing while Asian': living in fear as racism feeds off coronavirus panic." "2 New York City doormen fired after failing to intervene during brutal assault on Asian American woman." "8 Dead in Atlanta Spa Shootings, With Fears of Anti-Asian Bias."

It is no coincidence that the onset of the pandemic marked an increasing prevalence of Asian Americans in national media. Nor should it be surprising that the term "Asian American" is frequently accompanied by the word "violence." Asian Americans have historically been victims of imperialism, their culture subject to appropriation, and their features the object of fetishization.

At MIT, 19.7% of the student body identifies as Asian. In what way have these national events affected nearly 1 in every 5 students at MIT? MIT Asian American Initiative (AAI), a cultural club founded in 2020, asked students to respond to this question. Built around the theme of solitude and solidarity, the second volume of AAI's 2021 zine, Rooted, features student-submitted writing, art, and photography. Though the entries "reflect our fear, anger, and grief stemming from anti-Asian racism," many also explore the confusion of cultures the contributors grapple with today.

The zine begins with an uplifting poem, "Ascending" by Teresa Gao. A fallen bird, whom passersby take pity on, lifts its wings and flies, singing a song for itself and its victory. The bird could represent the Asian American community, forgotten but resilient, like a phoenix rising from the ashes. Personally, I believe "Ascending" would have better served as the ending of the zine, but opening the collection with an optimistic passage also has its merits.

The poems "My parents visit the grocery store on their first Halloween in America" by Cindy Xie and "A Statement for the Confused" by Afeefah Khazi-Syed highlight the struggles of first and second-generation immigrants and their dual identities — the native with the new and the native with the native itself. On the other end of the spectrum, "Fermented Soybeans: the gateway to cultural acceptance" by Alisa Hathaway

celebrates the writer's reconciliation of her identity later in her life.

The joys of memory are explored in "As Thin as Smoke" by Fiona Duong, a short story about the author's first memory of Vietnam. The ever-burning incense in her grandparents' house will always remind her of the country. "The Walls I Knew" by Emily Huang and "Resonant When Struck" by Felix Li also center on childhood objects. The walls of a childhood room and the porcelain of family dinners are celebrated for their si-

In addition to cultural identity, some of the pieces in Rooted highlight the mental struggles during quarantine. Interwoven in the zine are anonymous journal entries reflecting on a long-distance relationship begun right before MIT kicked its students off campus in March 2020 ("quaranTEEN love story"). Throughout quarantine, the author realizes that perhaps their feelings towards the other person in the relationship were not what they originally imagined were. This theme of gaining clarity through time and separation is prominent throughout the zine as many contributors cogitated on the nature of their lives and their surroundings during the virtual semesters.

My personal favorite is a series of illustrations, "Reverie of a Drink of Three" by Yiou Wang. The first two images depict two shadows running towards each other. When the shadows meet, a man stands between them. The shadows, then, belong to

a single man. It then becomes clear that the shadows themselves were not running the man was. As he ran to chase his shadows, representations of who he was, the intersecting walls ahead of him forced him to stop and recognize both sides of himself. The work ends with the line, "two who crave to meet, finally meet." The message of this piece can be interpreted as follows: everyone is the sum of all their identities. I also appreciated the title's clever reference to an eighth-century Chinese poem, "月下 獨酌" ("Drinking Alone Under the Moon"), which includes the lines, "舉杯邀明月,對 影成三人。" ("Raising my cup, I invite the bright moon / and turn to my shadow. We are now three.")

Rooted: Solitude and Solitary is a thought-provoking look into the lives of my peers who have grown up sideways, Asian at home but American outside. The scars and joys of language ("Do You Speak English?" and "Bastardized Tamil" by Neosha Narayanan), the duality of identity ("Between the Shores" by Kathryn Tso and "Learn How to Use Procreate for only \$9.99" by Alana Chandler), and the immigrant experience are only a fraction of the themes explored in Rooted. The only constant between the works is that there is no constant. The Asian American experience is the sum of Asian American experiences.

> Originally published in Volume 142, Issue 11 on May 4, 2022.

OUR FAVORITE RESTAURANT REVIEWS FROM 2022

A look at Blue Ribbon Sushi in Kenmore

Blue Ribbon Sushi

Japanese, \$\$\$

500a Commonwealth Ave.

Boston, MA 02215

Open every day

By Teddy Schoenfeld

In early 2021, three restaurants inside Hotel Commonwealth in Kenmore Square shut their doors. The loss of popular raw bar Island Creek Oyster Bar, seafood-focused brasserie Eastern Standard, and snazzy cocktail bar The Hawthorne was mourned by many, and locals have since yearned for suitable replacements. The area looks different now. The Kenmore Square Redevelopment Project, the construction of the Whoop headquarters, and the opening of the MGM Music Hall have transformed Kenmore from a ballpark neighborhood to a classy commercial, retail, and entertainment hub. Leading the culinary charge with the opening of three new restaurants, all in the vacated Hotel Commonwealth spaces, is New York's Blue Ribbon Group.

Owned by brothers and restau and Bruce Bromberg, the group is well known meal. I finished with a large botan ebi (spot for Blue Ribbon Sushi, a cozy sushi bar concept with locations in New York, Los Angeles, Las Vegas, Miami, and, as of June 2022, Boston. Blue Ribbon Sushi Kenmore resides in the old Hawthorne location — in fact, the restaurant's unassuming main entrance was formerly Hawthorne's side door.

Self-described as the creators of "modern neighborhood restaurants," Blue Ribbon has 20 establishments nationwide, 10 of which are in New York. One of many applicants for the Hotel Commonwealth spaces, Blue Ribbon was chosen in part because of their ability to cater to a wide customer base while maintaining exceptional quality and creativity. The group's restaurant concepts are diverse: a gastro-bowling alley, an NYC fried chicken spot, and their original New York brasserie.

Although it's been one of Boston's hottest new restaurants since it opened this summer, Blue Ribbon Sushi's exterior is modest. The entrance is unadorned and set back from the sidewalk. A staircase takes patrons to the below-ground dining room. Inside, businessmen in suits sit next to twenty-somethings in workout clothes. The decor is casually elegant; warm lighting complements sleek, dark wood

and upholstery. Although the restaurant lies just two blocks from Fenway Park, it feels a world away from the bricks of boozy Lansdowne Street.

Like the New York location, the menu has options for both tame and adventurous eaters. The a-la-carte nigiri options are plentiful, with fish flown in daily from both the Atlantic and Pacific Oceans, but there are appetizers, salads, and yakitori skewers as well. Maki selections range from the indulgent Blue Ribbon roll, with lobster, shiso and caviar, to a simple avocado and cucumber roll. Several steaks are also available, including an A5 Wagyu prepared Teppan style and offered in 2oz, 4oz, or 8oz portions.

Besides the regular menu, specials include ten different nigiri options as well as monkfish medallions prepared with lobster miso butter, turnips and green beans. The food offerings are accompanied by an extensive selection of sake, Japanese whisky, and an ambitious wine list, especially for a sushi

The sushi was prepared with intense attention to detail - the rice was the perfect temperature, the fish garnished with appropriate amounts of wasabi and, in the case of the anago (saltwater eel), eel sauce. Memorable pieces included pillowy kaibashira (sea scallop), chu-toro (fatty tuna) that dissolved on my tongue, and buttery, savory Hokkaido uni (sea urchin), my favorite niece of the prawn) and tamago (sweet egg omelet), a perfect substitute for dessert.

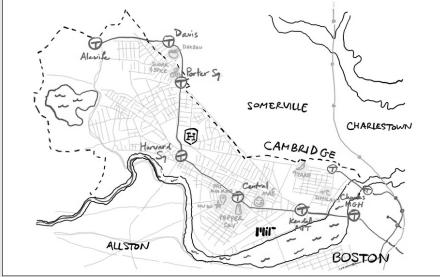
Although the other spaces are under construction, Eric Bromberg has said that the group's focus is making sure Blue Ribbon Sushi gets off the ground. It seems to be doing just that — according to manager Liz Luce, it's been packed since its opening in June 2022. Meanwhile, we know what's coming to the other Hotel Commonwealth spaces — one will be occupied by Pescador, a seafood-focused "coastal grill" set to open this month, while the other is rumored to become a brasserie concept like the New York location.

True to its brand, Blue Ribbon struck a perfect balance: the fish was excellent, the menu was creative (albeit a bit pricey), and the restaurant seemed as appropriate for a casual weekday lunch as it would have been for a celebratory dinner. Although locals will always mourn the losses of ICOB, Eastern Standard and The Hawthorne, Blue Ribbon Sushi is the perfect first step to filling their

> Originally published in Volume 142, Issue 22 on October 12, 2022.

A Blue Ribbon takeover | A tour of Cambridge's Thai food scene

Missing home less and becoming more proud of my home country



ARUN WONGPROMMOON—THE TECH

A map to accompany your Thai food tour around Cambridge.

By Arun Wongprommoon

PRODUCTION EDITOR

Being an international student quite literally from the other side of the world, I find myself missing the life I take for granted at home: the sights of the energetic morning market overwhelmed with scents from streetside stalls, the oil grilling and frying pork-on-a-stick, corn cobs, meatballs and dumplings, and the aromatic stir-frys paired with rice; the thunderous cacophony of cars and buses carrying the population of Bangkok, a city that never sleeps, to home, work, bars; the smell of an imminent rainstorm ready to feed the hungry tropical

Attending college in the United States threw me into an entirely new society, and I spent months disoriented by the smallest details of "normal life" here. Amidst such an upturn, the one thing that provided a slight remedy for my homesickness was food — I was relieved to see a surprising number of Thai restaurants in the greater Boston area. Over the years though, the culture shock subsided. I've grown more comfortable in Cambridge, and now I'm proud to call Boston my second home. When I do miss the bustle of Bangkok, I always find myself wandering to a local Thai restaurant, in search of the spices and tastes of home.

Thai food got a foothold in U.S. society following a diplomatic ploy. Dubbed Thailand: Kitchen of the World, Thai diplomats hoped to attract people to Thailand and boost tourism by impressing restaurantgoers in the states. The Thai Ministry of Commerce crafted three different formulas to take a piece of the country abroad, each one detailing ingredients, logistics, and everything else one would need to know about establishing a restaurant. While I'm not sure if any of the Thai restaurants here actually use these formulas, it is nearly impossible to meticulously replicate a Thai restaurant in Cambridge, as it requires not only the most skillful chefs, but also the best artists and designers to decorate the interior and exterior, lay out the silverware, choose the materials, furniture, and so on.

In short, a restaurant is more than the food it serves — it is also the ambiance that is inevitably served as another side dish. Despite that note, the Thai restaurants I've tasted here are surprisingly authentic. I've been able to converse in Thai with Thai restaurant owners, waiters, and waitresses, which is always a good sign of authenticity, because outside of Massachusetts there have been times when I have embarrassed

Thai Food, Page R16

Thai Food, from Page R15

It's only right to start with the most commonly-known Thai restaurant around MIT: Pepper Sky's. As evidenced by its popularity among student-run free food events, Pepper Sky's is in the hearts of many MIT students. Their catered pad thai is average, but Pepper Sky's is not bad for a casual free food run

If you walk south along Massachusetts Ave. and turn at the new Toscanini's onto Main Street, you'd find yourself at Maê Asian Eatery. I would recommend Maê for any casual meal or even something bigger — like a birthday dinner for twelve (speaking from experience).

Farther along Mass. Ave. back north to Central Square, a little past Walgreens, you'd find a tiny restaurant named Pai Kin Kao. This would be one restaurant that is more street-style than polished. As you travel farther from campus, the food gets better.

A hidden gem in East Cambridge where people don't usually reach is 9Zaab. 9Zaab is moderately priced, good for takeout, and though it is rather far, the authentic harder-to-find street food always serves as a reward for the walk.

A short walk from Porter Square is Sugar and Spice, decked out with Thai art and decorations. This restaurant is in the middle on a scale of street to polished. It's quite a journey from campus but well worth it.

If you take a short walk or a T ride even further north to Davis Square at the edge of Cambridge, you'd come across Dakzen, which is technically not in Cambridge — but an inch away in Somerville. Dakzen was rated Best in Boston 2019, and I agree.

Circling back to Central Square, a bit

further west into the residential areas, you can find Nu-Do, a newly opened noodle restaurant.

You can complete the tour by heading towards the Kendall/MIT Red Line station, bending left onto Third Street, and continuing to walk in the same eastward direction (think Toscanini's). Similans is housed within the same block and provides a neat dining experience.

Summary

Pepper Sky's: Authenticity 3 out of 5, Price 3 out of 5, Accessibility 4 out of 5 (a short walk from campus).

Maê Asian Eatery: Authenticity 3.5 out of 5, Price 2.5 out of 5 especially for dinner, Accessibility 4 out of 5. If you're departing from a class in Stata, it would be a shorter walk

Pai Kin Kao: Authenticity 4 out of 5, Price 3 out of 5, Accessibility 3.5 out of 5.

9Zaab: Authenticity 4 out of 5, Price 3 out of 5, Accessibility 3 out of 5, though I'd give an extra point for the breadth of their menu.

Sugar and Spice: Authenticity 3.8 out of 5, Price 3 out of 5, Accessibility 2.5 out of 5, and a couple extra points for good regional representation.

Dakzen: Authenticity 4.5 out of 5, Price 5 out of 5, Accessibility 2.5 out of 5.

Nu-Do: Authenticity 3.3 out of 5, Price 4 out of 5, Accessibility 3.5 out of 5.

Similans: Authenticity 3.5 out of 5, Price 3 out of 5, Accessibility 3.5 out of 5, and an ice cream reward for being next to Tosci's.

Originally published in Volume 142, Issue 2 on February 17, 2022.

Read the full journey online at http://thetech.com.



ARUN WONGPROMMOON—THE TECH

The Tom Yam Noodle Soup from Dakzen, along with other delicious dishes in Thai restaurants around Cambridge.



ARUN WONGPROMMOON—THE TE

A typical scene of Bangkok.

INTERVIEW

Inspiring a new generation of justice-centered video game designers

An interview with Games for Justice youth summer program founder Husain Rizvi '22

By Alana Chandler

Quotes are lightly edited. Interview took place July 2021.

Although many people criticize video games associated with violence, founder of the Games for Justice youth summer program Husain Rizvi '22 thinks that this is not where we should be focusing our attention. "I think many people consume a lot of violent content on a daily basis, but it takes a specific set of situations to make a person act upon violent things." Instead, Rizvi underscores the dark underbelly of the gaming industry: "A lot of game studios are essentially like frats on steroids where it's really malecentric. They think they're catering to a cis straight white male gamer, and so to reflect that, the studios themselves almost become that. It becomes dangerous for people of color and women and nonbinary folks, with lots of sexual harassment cases happening in game industry, like at [Riot Games]."

Rizvi believes that the products created reflect this toxic work culture. "A lot of games have prejudiced portrayals of folks. You don't really see Black or Brown video game characters, and when you do, they're often essentially mobsters — think Grand Theft Auto." Additionally, Rizvi points out that many games promote colonialism, since they "rely on conquering a new place with many resources."

This frustration with the corrupt and unsafe game studio environment motivated Rizvi to create Games for Justice. Founded in 2020, the summer program teaches Boston area high schoolers of color principles of game design and digital art while also providing monetary compensation for the students. The program aims to emphasize how collective care and social justice are key to creating safe, justice-centered art studios.

Rizvi's curriculum was in part inspired by a class they took at MIT, "Games and Social Justice," taught by Scot Osterweil. "I remember this time where he let me skip class for the Henry Kissinger protest in 2019 led on campus, and I will forever respect him for that ... [Regarding class, Osterweil] called out and analyzed games where, even if they're trying to do social justice things, a lot of these games are made by white people who inadvertently affirm racist messaging, even when they're well-meaning."

Games for Justice culminates with student groups sharing the games they designed. During the 2020 session, one group conceptualized a game about the school-to-

prison pipeline by illuminating how schools are structurally designed in ways that resemble a prison. "It was actually so fascinating because some of these things I had never even thought of before. For this game, you made decisions like, are you going to have bells ringing to signify when class is over? You could select a yes or no, and if you choose yes, it gives you a short explanation on how that resembles how prisons run, like how bells are used to control the movement of people inside prisons ... These are literally 16-year-olds making this game. They are amazing." Another group made a dialoguebased game on two-party political systems, exploring "how to be a grassroots organizer to try and defeat the two-party system that isn't really doing anything for anyone."

During the 2021 program, the staff also made their own game casting light on fetishization and racism in dating. "We did a quick game jam to see what we could make in six hours and got the youth to do the voice acting for it. ... There are a bunch of different profiles on the game dating app, where a user can see how each profile is reacted to differently. When you play as a white cisgender man, nothing really happens to you, but playing as a Brown trans woman or a Black nonbinary femme person, your experiences are so different."

As the founder of the program, Rizvi cowrote the entire curriculum alongside fellow MIT student Greg Peterson '22, all while managing a full course load. Later, it was up to Rizvi to find both funding and staff. "Staff hiring was probably the scariest part of this process, even more than applying for the grant, because I had to essentially play boss, hiring people who are my age. It just felt so weird."

After a successful staff search, the virtual summer 2021 session began with four hours of daily programming through Zoom. Educational content consisted of discussions on a social justice topic, a game design tutorial, or learning about the intersection between these two fields. "A tutorial might be where we're learning a piece of software, like Unity. The games and social justice piece could be the intersection of games and racism; we learned about how different games might perpetuate this and how we can make a game that actually works to dismantle racism."

"[Making a game for social justice] is a lot more than just showing an image of a person having to make choices in their life and pointing out how hard their life is, because that is just upholding one image of what it means to be a Black or Brown person rather than allowing for more representation or power. I don't want a Brown face in a game that has no Brown people behind it. I want to write that game."

While Rizvi did not grow up playing video games often, nor did they have any notion that they would end up founding a summer program during their time at MIT, they centered their campus pursuits on social justice from the get-go. It was their experience in a transformative youth program during high school that inspired such passion for community-level organizing. When Rizvi was 17, they became involved with a summer program within The City School that aims to empower youth to become effective leaders for social justice.

When transitioning from a public middle school to a private, whiter high school, Rizvi was confronted with much racism from their peers. "Part of my radicalization came from a place of survival in that space because I needed to fight for myself; because otherwise, I have to believe all these things that these racist people at my high school were telling me." It was one of the other students of color who was coping with similar challenges who told Rizvi about The City School.

"The City School helped me understand more of the framing around not just what it means to experience those microaggressions, but how to organize specifically as a South Asian person, how to organize against anti-Blackness and with multi-racial organizing in mind. How do you make sure that you're not just fighting for your rights, but also for the rights of other Black and Brown people?" Rizvi says the program also emphasized the power that youth have to share valuable perspectives that are often underheard.

Rizvi entered college eager to explore the capacity for social justice at a technical school like MIT. As a freshman, Rizvi joined a plethora of student advocacy groups, where they met many people who held similar justice-oriented visions for the Institute. However, "the more I interacted with the MIT community, the more I realized that all the coolest people at MIT are essentially the ones with the least amount of power. I remember I was helping protest and organize against Subramanian Swamy, an Islamophobic, homophobic right-wing speaker who had come to MIT from India. We met with the administration, which kind of destroyed my hope for change at MIT. ... I can't imagine the audacity I had as a freshman. [To the administrator,] I was like, 'I will read you some of his quotes and then you can tell me whether you want that to be on campus or not.' The [invited speaker quoted] said horrific things." According to Rizvi, the administration heard this and acknowledged the horrors of these statements, but concluded that, "at least Americans will get to know how bad he is."

"I literally took a minute. I told them I would rather have no one in America know who he is than uphold the work that he's doing in India by essentially contributing to the brutal violence towards Muslims and intense homophobia in India. [The administrator] had nothing to say because what are you saying to that? We left that meeting knowing nothing was going to happen."

Rizvi became exasperated with their work at MIT. Despite endless toil, there was little output. "After sophomore year, I was like, you know what? I don't really want to do stuff at MIT. I'm going to do stuff with my community and use MIT's resources and try to redistribute them." And that's exactly what Rizvi has done through Games for Justice.

When reflecting on the Games for Justice mission of collective care, Rizvi posits the question, "How do most people think about care with respect to themselves? It's often framed as self-care. What can I do for myself? I can watch a movie. I can binge a show. I can eat something really good — all of these individual actions. But what people might not realize is that I am not solely responsible for my care. There's a community of people that are committed to caring for me, and I'm committed to caring for them. Collective care is the idea that when someone feels uncared for, hurt, or has things going on, you're not dealing with that alone. We're going to deal with it together as a group, so we don't feel alone and isolated."

As for the future of Games for Justice, Rizvi reflects, "I actually feel like I'm at this point where I'm really happy with closing the chapter for Games for Justice for now and doing other jobs to deepen my organizing experience within Boston. If I feel like revisiting in the future, I certainly will, but for now I want to go beyond my background in summer programming."

"I was initially worried, what if it doesn't go on forever? But it doesn't have to. It just has to provide people with a beautiful experience while it's alive."

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OUR FAVORITE ENTERTAINMENT OF 2022

FILM AND TV

SCIENCE FICTION

DOCTOR STRANGE 2 (MAY 2022)



1899 (NOV 2022)



ACTION

AVATAR: THE WAY OF WATER (DEC 2022)



THE LAST OF US (JAN 2023)



COMEDY

EVERYTHING EVERYWHERE ALL AT ONCE (MAR 2022)



OUR FLAG MEANS DEATH (MAR 2022)

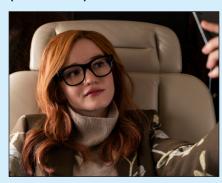


DRAMA

THE FABELMANS (NOV 2022)



INVENTING ANNA (FEB 2022)



VIDEO GAMES

ACTION

ELDEN RING (FEB 2022)



THE LAST OF US PART I (SEPT 2022)

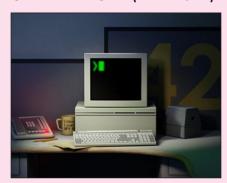


ADVENTURE

STRAY (JUL 2022)



THE STANLEY PARABLE: ULTRA DELUXE (APR 2022)



MUSIC

TAYLOR SWIFT: MIDNIGHTS (OCT 2022)



BJÖRK: FOSSORA

(SEPT 2022)

MITSKI: LAUREL HELL (FEB 2022)

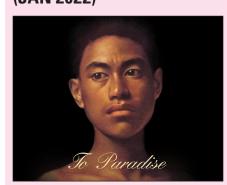


BEYONCÉ: RENAISSANCE (JUL 2022)

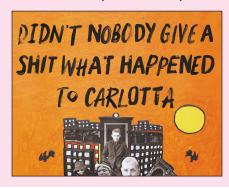


BOOKS

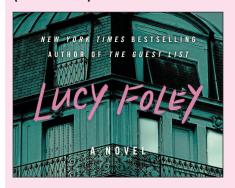
TO PARADISE (JAN 2022)



WHAT HAPPENED TO CARLOTTA (AUG 2022)



THE PARIS APARTMENT (FEB 2022)



BOOK OF NIGHT (MAY 2022)



At an institution where students live and breathe science in their classes and research, it's both appropriate and remarkable that some still find time to write about it when the school day ends. In 2022, science coverage in The Tech resumed slowly but surely as the department continued to regrow following the pandemic

Over the course of the year, our writers explored a breadth of research — in and out of MIT — that promises to expand our understanding of the world around us. We spotlighted complex work in the Department of Civil and Environmental Engineering aiming to model the properties of biological materials, from human tissues to adhesives. A survey of nuclear thermal propulsion technologies - and their potential to

transform the landscape of space exploration — gave us a glimpse into the future of astronautics. And an exploration of the policy-oriented problem-solving in MIT's Blueprint Labs highlighted the impact of data-driven, interdisciplinary research in spaces like healthcare and education.

We thank the researchers who shared their science with us and the readers who tagged along. In the coming year, we hope this department will continue to showcase just how far science and technology can take us, from layers of tissues to planets in our solar

> – Laura Schmidt-Hong '23 Volume 142 Science Editor

State of science Nuclear thermal propulsion for space

The history and future of astronautic nuclear technology

By Codrin Paul Oneci

Over the past few years, organizations and companies including NASA, the U.S. Department of Energy, SpaceX, and the International Atomic Energy Agency have expressed interest in using nuclear technologies to make space exploration more efficient and economical. In particular, nuclear thermal propulsion (NTP) is emerging as a potentially key technology for transporting large masses from Earth to various positions in the solar system, while surface power systems using nuclear reactors could be used to provide energy to the first human inhabitants of Mars.

NTP is not a new technology: it was largely developed in the 1960s during the Space Race, culminating in the successful development of the Nuclear Engine for Rocket Vehicle Application (NERVA). The principle behind all NTP systems is the same: nuclear fission is used to heat helium or hydrogen to temperatures of about 2,200-2,800 Kelvin, accelerating these gasses to produce thrust. In the case of NERVA, the design was similar to that of a miniaturized nuclear fission reactor, containing components made of graphite and beryllium oxide and a liquid hydrogen-based coolant in the rocket propellant. These atoms, which have a low atomic mass, are used in thermal propulsion because they have the highest associated specific impulse — the ratio between the exhaust velocity of the particles and the gravitational field intensity at sea level. Essentially, higher specific impulses result in higher thrust and better mass efficiency: for the same thrust, the propulsion system

In 1973, NERVA was capable of generating significant amounts of aggregated power of exhaust particles, with a specific impulse more than double that of chemical rockets and a particle exhaust velocity close to 8,000 meters per second, almost double the particle velocity in chemical engines. NERVA had a thrust comparable to that of chemical rockets, but the main advantages of the technology were its high specific impulse and energy density. For maneuvers involving large specific transfer impulses, such as Earth-Mars missions, the maximum allowed mass of a spacecraft is the primary technical constraint, and at that point NTP results in higher economic efficiency for reaching the same transfer objective.

The operating parameters and performance of NERVA are considered state-ofthe-art even in modern-day designs and illustrate the benefits of nuclear propulsion over chemical rockets: more compact energy sources and higher particle exhaust velocities. While the large size of NTP systems and inherent radioactive nature of ejected matter makes them unusable on

Earth, they are a strong option in space conditions.

However, after the success of the Apollo program and immediate public image benefits of its success in the Space Race, the United States government decided not to invest further in these projects. Politicians were no longer interested in investing in a program relevant for a manned mission to Mars, and although the technology had been developed and was ready to use, there was no public interest in continuing research in the field or making commercial use of it. Research and development of NTP was stagnant between the end of the Space Race and the 2010s.

Today, 50 years later, the landscape of space exploration is very different, as both China and Russia are willing to spend national resources to achieve strategic superiority in astronautics and the development of space systems, including preparation for the economic exploitation of space and resources in it. Economic competition over the last decade has also generated more interest in the field, and organizations and companies across both the U.S. and Europe have decided to invest more in it, with positive effects on the development, both physical and conceptual, of many technologies — including NTP.

Given the fact that NERVA weighed about 18 tons and Starship, the largest spacecraft currently produced by SpaceX, is capable of lifting more than 100 tons of payload to low earth orbit, it is evident for many specialists that we are currently capable of transporting such large propulsion systems in a single trin there exists the possibility of actually assembling large space structures while in the Earth's orbit, or in nearly constant grayitational potential regions — space where the gravitational field intensity is close to zero, with almost no gravity observed.

Until we see NTP systems running in space, we may first witness the deployment of other nuclear technologies, like nuclear electric propulsion systems, which complement current work by NASA to miniaturize high-power nuclear systems for space missions. Using electromagnetic fields to accelerate ions, these systems produce less thrust than NERVA but are a step towards using nuclear technology in space and physically experimenting with propulsion systems that one day may be used on spacecraft heading to distant objects in the solar system. It is just a matter of time — and increasing economic competition between nations — until we will see such systems being used in transporting equipment and humans to Mars in order to make humanity a multiplanetary

> Originally published in Volume 142, Issue 14 on July 7, 2022.

LAB SPOTLIGHT

Discovering nature's properties through nonlinear mechanics

The Cohen Mechanics Group's quest to model the mechanics of biological materials



A fracture is made using the VCCE method in PDMS, a silicon-based polymer that the Cohen mechanics Group often uses to simulate tissue.

By Alayo Oloko

Have you ever wondered how biological materials like skin and muscle grow? Or why these materials behave the way they

These important questions are what researchers in the field of nonlinear solid mechanics seek to answer. The Cohen Mechanics Group headed by Dr. Tal Cohen, a researcher and associate professor of civil and mechanical engineering, was founded in 2016 in the Department of Civil and Environmental Engineering with the aim of first developing, then testing, theories in

According to Cohen, if you were to compress a material and measure its displacement in response to that load, you could then graph the relationship between the two. For sufficiently small forces, the relationship could be simplified to a linear curve – a straight line, for which the slope is the stiffness of the material. This linearization is extremely useful for engineers in predicting the behavior of structures. However, this model doesn't always apply in the real world, especially with softer materials that can undergo large deformations when a force is exerted on them. The study of nonlinear solid mechanics goes further by subjecting materials to extreme stress or strain to observe their properties and behavior. Examining these extremes enables a more complete understanding of these materials.

The applications of this field are widespread, from creating stronger buildings to studying the nature of brain injuries. While these two examples seem vastly different, they are both the subject of the Cohen Mechanics Group's work.

Over its five-year existence, the group has gained many new insights in the field. One that Cohen is particularly proud of is the lab's development of the volume-controlled cavity expansion (VCCE) method. In the VCCE method, water is injected into a chosen material like biological tissue. By controlling the volume of injected water and measuring pressure, stiffness and other material properties can be locally measured in the tissue. Prior to the development of this method, measuring these quantities in biological tissue was difficult depending on its size and shape, as well as the fact that tissue behaves differently inside or outside the body.

Many potential applications of the VCCE method have emerged, especially within healthcare. Hannah Varner, a mechanical engineering PhD student leading the VCCE effort in the Cohen Mechanics Group, is currently applying the method to model the properties of blood clots. Another major potential application is in guiding the surgical removal of cancerous tissue. When surgeons perform these operations, they often have to rely on the relative fitness of tissue to decide what to remove. The drawback of this approach is that it relies on human intuition. The VCCE method could

provide quantifiable material properties of diseases that would make locating and removing cancerous cells more precise, improving the way that cancer is treated. Recently, the Cohen Mechanics Group has been working with local doctors to explore implementations of the VCCE method in a healthcare setting.

Another subject the group studies is how organisms grow. Rather than using the typical approach of reverse engineering a biological system and guessing at a correct model, the group breaks the system down into what Cohen describes as "the basic mechanisms that generate growth." The group creates models synthesizing those mechanisms together. These models guide their understanding of how organisms will grow, which can provide insight that can be used in the design of objects from nonbiological materials.

Cohen emphasized how curiosity drives the group's members. "Everything we do starts with some curiosity due to observing something," she said. The group is "constantly encountering more and more phenomena to understand."

That strong curiosity, along with the interdisciplinary nature of the group's research, is displayed through the range of projects the group's ten members are currently undertaking. Speaking to these students, including Hanna Varner mentioned above, provides interesting insight into their projects. Tara Venkatadri, a fourth-year aerospace engineering major, has been working to better understand interfacial failure of adhesives and the effects of torsion on them. Mrityunjay Kothari, a postdoctoral associate with a PhD in solid mechanics, is studying biofilms — gatherings of bacteria that grow everywhere from our teeth to the bottom of ships — and examining how they grow in different settings. Chockalingam Senthilnathan, an aerospace engineering PhD student is studying how shear shocks travel through the brain and can cause much more damage than previously thought. Though these projects may seem drastically different, they are rooted in the same fundamental questions. As Cohen described it, "we have different projects that are pulling along different directions, but we also collaborate a lot within the group, and things essentially merge."

The Cohen Mechanics group has accomplished much in the five years since its founding, and with its many ongoing projects, it promises to continue producing interesting and insightful research. As the group looks towards the future, they hope to see their work applied in various fields and for their research to help others to better understand the world around us. As Cohen stated, solid mechanics "applies to so many things. That's what's so exciting about solid mechanics: it's just in everything and everywhere." Thus, there is no telling what the group might discover next.

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LAB SPOTLIGHT

Data-driven policy for a better world

Blueprint Labs uses economic models for policy in healthcare, education and labor

By Safiya Sankari

21 percent of kidneys are discarded in the U.S. annually [1]. Under the current kidney placement system, after an organ donor has passed away, kidney recipients are asked sequentially, according to a priority list, whether or not they will accept the kidney. Since kidney transplants are time sensitive, it is often difficult for transplant coordinators to contact recipients in time.

Developing strategies to lower this discard rate and improve the kidney placement rate is one of the many problems MIT's Blueprint Labs focuses on. Blueprint Labs is an interdisciplinary group that uses economics- and data-oriented approaches to tackle problems in healthcare, education, and workforce policy. In ongoing work, the lab is developing a machine learning tool to help predict whether a given kidney recipient will accept a transplant. This tool may be used in conjunction with the transplant coordinator's judgment to determine what to do with kidneys that have to be transplanted quickly. "This algorithm may be useful for lowering the kidney discard rate by expediting kidney placements in a more targeted manner," said Nikhil Agarwal, a

professor of economics and co-director of

Within the field of healthcare, the lab has also worked on addressing inefficiency in kidney exchange programs. In the realm of transplantation, kidney exchange occurs when a donor-recipient pair is not compatible but "swapping" with a different kidney donor pair would make a compatible form. More compatible swaps can be made through a chain of swaps; however, finding the most efficient chains is difficult without accurate models. Research from Blueprint Labs has identified modifications that could be made to current kidney exchange algorithms to improve the efficiency of kidney exchange. The modifications are currently being implemented in the Alliance for Paired Kidney Exchange — the secondlargest kidney exchange platform in the

As is evident from both of these projects, Blueprint Labs works on two major research areas within data and economics: market design and research design. Market design focuses on how to efficiently and equitably allocate scarce resources, similar to the kidney placement system, while research design focuses on understanding the impact policies or interventions will have, similar to the modifications developed for kidney exchange platforms.

Yet Blueprint Labs' research extends far beyond healthcare. Using market and research design, the lab also conducts research with applications in education and the workforce. The lab primarily uses economic and statistical models to tackle problems in these areas. In education, Blueprint Labs has studied the impact of school busing and lottery admissions. In workforce research, the group has studied discrimination among U.S. employers and how AI technology impacts workers. It is this combination of topical interests and its economic toolkit that makes Blueprint Labs distinct from other research groups. "Blueprint Labs is a unique place. I cannot think of any other economics lab where this type of work is being done," said Agarwal.

The group also works closely with policymakers and practitioners to implement the evidence-based solutions they develop. "While primarily a research lab, it is a great platform for research outreach," said Agarwal. Blueprint Labs hosts meetings between academics, practitioners, and policymakers to help improve policy and promote an open exchange of ideas. It is this collaboration with interdisciplinary groups that allows Blueprint Labs to have a more complete picture of its research areas beyond pure academia. "Evidence is part of the puzzle; it does not tell you everything that is necessary," said Agarwal. Facilitating these discussions between academics and practitioners is essential to making the models and recommendations developed by Blueprint Labs a reality. In line with its work in market and research design for education, the lab was also instrumental in organizing a summer school for international PhD students to collaboratively learn about market-design research.

While tackling problems across diverse fields and working to address issues in social policy, the glue that binds Blueprint Labs together is its economics and data background. Wielding this expertise, Blueprint Labs is working to approach policy issues from a unique, data-driven perspective. "There is no other place in the world that does this, in such a setting," Agarwal

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[1] Li, M. T., King, K. L., Husain, S. A., Schold, J. D., & Mohan, S. (2021). Deceased donor kidneys utilization and discard rates during COVID-19 pandemic in the United States. Kidney International Reports, 6(9), 2463–2467. https://doi.org/10.1016/j.ekir.2021.06.002



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SOCIAL MEDIA IN REVIEW

This year was a big year for *The Tech*'s social media accounts, mostly due to the return of weekly posts on the paper's content! The Facebook, Twitter, and Instagram have all been steadily growing over the course of the past year, and we hit milestones such as the Instagram passing 5k followers. Several of our posts were reposted by groups like @mitpics, and we had significant breakout posts,

Follow our social media!



INSTAGRAM @thetechmit



FACEBOOK

TWITTER @thetech such as the post on the openness banner in Lobby 7. For this next year, I'm hoping we can continue this consistent growth, invest more in story posts, and grow the social media department's responsibilities!

> — Frankie Schulte '24 Volume 142 Social Media Editor

Join our online community

5K FOLLOWERS ON INSTAGRAM

7K FOLLOWERS ON FACEBOOK

8K FOLLOWERS ON TWITTER

TAG 🔽

SHARE 1

LIKE .

The year 2022 was an important one, like all years in reflection. With COVID vaccines and booster shots, restrictions began to relax and more and more inperson events began again. Our once annual in-person Fall Career Fair popped up once again for the first time in 3 years. Through student efforts, MIT changed their campus access policy to be more open to the public. It marks the last full year in which we'll have a class year of undergrads who experienced MIT before the pandemic. In the wake of returns, it's a time for us all to reflect and decide what's worth keeping with us into the

The Photo Department has been able to capture only a sliver of the life, community and culture of MIT over this year. Both the editors and many of the staff in the department come to the department with a passion for photography and an eagerness to explore our campus through the lens. From the Springfest to Commencement to the Ukraine protests, we hope our efforts were able to capture these moments accurately and with

We are both grateful to have been able to serve *The Tech* as photo editors for Volume 142. It was a valuable experience that allowed us to in some small part have an impact on MIT's community and one that would not have been possible without our wonderful staff in the Photo Department. Here's to a new year, a new volume and our new editor,

> — Maximo Machado '23 & Cady Boronkay '24 Volume 142 Photo Editors









































