

YouTuber, Science Communicator, and Entrepreneur Hank Green to deliver Class of 2025 Commencement address

Kornbluth: "Hank and his endless curiosity more than fit the bill."



PHOTO COURTESY OF RIO CHANTEL PHOTOGRAPHY

By Alex Tang

EDITOR-IN-CHIEF

Hank Green, a science communicator and entrepreneur, will speak at the 2025 OneMIT Commencement Ceremony May 29. Green is best known for his several Youtube channels, notably CrashCourse and his educational media company Complexly, which he leads with his brother and author John Green.

Green has amassed a YouTube totaling over thirty million subscribers across several channels with billions of total views. Some of the most watched videos made by Green range from full playlists in academic areas in Psychology and Biology in CrashCourse to explorations of the planet's deepest hole and its most dangerous chemicals on SciShow.

"I was just so honored to be invited," Green told MIT News. "MIT has always represented the best of what happens when creativity meets rigorous inquiry, and I can't wait to be part of this moment."

"Many of our students grew up captivated by the way Hank Green makes learning about complex science subjects accessible and fun — whether he's describing climate change, electromagnetism, or the anatomy of a pelican," MIT President Sally Kornbluth said to MIT News. "Our students told us they wanted a Commencement speaker whose knowledge and insight are complemented by creativity, humor, and a sense of hope for the future. Hank and his endless curiosity more than fit the bill, and we're thrilled to welcome him to join us in celebrating the Class of 2025."

On the speaker

Prior to starting his career as a content creator, Green studied biochemistry at Eckerd College (BS)

and earned an M.S from the University of Montana in environmental studies. During this time, Green began blogging about environmental issues: in addition to blogging on his own site Ecogeek (which became Complexly), his work has been published in The New York Times, NPR, and Scientific American, among others.

In 2007, Green started a YouTube channel with his brother John titled Vlogbrothers. It was in Vlogbrothers, where the Greens began using their signature, "Don't forget to be awesome." CrashCourse began in January of 2012 and has ballooned ever since.

Outside of content creation, Green and his brother run an annual charity called Project for Awesome. Additionally, the duo founded DFTBA Records ("Don't Forget to Be Awesome") which is a merchandise platform for YouTubers. In June of this year, Green ventured into comedy with a special titled Pissing Out Cancer, which chronicles his experience with Hodgkin lymphoma. Green is currently in complete remission.

Students and faculty praise the choice

Senior Class President Megha Vemuri '25, Graduate Student Council President Teddy Warner G, and Professor Les Norford from the Department of Architecture and chair of the Commencement Committee, underscored Green's commitment to engaging a global audience and his impact on society through education.

Vemuri said that "Hank Green is an inspiration for those of us who want to make science and education accessible, and I'm eager to hear what words of wisdom he has for the graduating class."

Warner stated that "As someone that has worked tirelessly to make science accessible to the public, Hank Green is an excellent choice for commencement speaker. He has commendably used his many skills to help improve the world."

Norford shared that "CrashCourse's lucid, engaging videos have bolstered the efforts of millions of high-school students to master AP physical and social science curricula and have invited learners of all ages to better understand our universe, our planet and humanity."

Vemuri stated that "He embodies a pure and hopeful form of curiosity just like what I've observed across the MIT community," while Norford added "Hank Green shares our students' boundless curiosity about how things work, and we're excited to welcome such an enthusiastic educator to MIT."

Commencement Exercises

Recent Commencement speakers include the entrepreneur Nour Afeyan (2024), YouTuber Mark Rober (2023), director-general of the World Trade Organization Ngozi Okonjo-Iweala MCP '78 PhD '81 (2022), and civil rights lawyer and activist Bryan Stevenson (2021).

MIT's Commencement celebrations will take place over three days from May 28 to May 30. The undergraduate Class of 2025 will receive diplomas on Killian Court May 30. Recognition ceremonies for advanced degree recipients will be held on all three days of Commencement exercises.

All degree candidates are invited to attend the OneMIT Commencement Ceremony on May 29. Events will include speeches, the turning of the Brass Rat, and a rendition of the School Song.

SEE BACK COVER NOTICES FROM THE PUBLISHER

MIT matches all-time high 100 students in the Class of 2029 through the QuestBridge Program

On Dec. 2, the QuestBridge program released results for its match day, where high-achieving students from low-income backgrounds are matched with top colleges and universities. This year, 100 students were matched with MIT, an all-time high. The Tech confirmed this figure with Stu Schmill '86, Dean of Admissions and Student Financial Services.

Admissions via the QuestBridge program at MIT has been trending upward in recent years following affirmative action ban by the U.S Supreme Court. Schmill said that for the class of 2028, "more than 50 students" were admitted through the match process. In 2022 and in years prior, matches via the QuestBridge program to MIT never exceeded thirteen.

In a written statement to The Tech, Schmill stated that the admissions team is "very pleased to be able to increase the number of students we have matched and admitted to MIT through the program." Schmill also noted several of MIT's admissions and financial aid policies, including, no preferences for applicants with legacy or donor connections, a need-blind admissions policy, and financial aid packages that meet full need. Finally, Schmill stated that the recent investments in financial aid will allow the MIT to "continue this strong tradition" of being a "leader in elevating opportunity for students from low-income backgrounds."

Early action results for the Class of 2029 will be released on Tuesday Dec 17 at 6:28 PM.

— Alex Tang

Graduate Student disciplined for involvement in Pro-Palestinian movement on campus

On Dec. 4, Prahlad Iyengar G, a graduate student in the Department of Electrical Engineering and Computer Science, has been suspended until January of 2026 for his involvement relating to the Pro-Palestinian movement on campus. He is also banned from campus premises. The Institute's Committee of Discipline imposed these sanctions.

Iyengar is on the steering committee of the Coalition for Palestine (C4P). He was one of the editors of Written Revolution, a Pro-Palestinian student run political magazine, which is under investigation by the Institute administration.

Iyengar receives funding from a highly competitive National Science Foundation (NSF) grant: the C4P claims that he will lose such funding as a result of the suspension. A petition circulated

in support of Iyengar has garnered signatures from numerous MIT faculty and staff, claiming that the suspension "is excessive and disproportionate" and that it will have "lifelong, career-damaging consequences."

Dozens protested at the Cambridge City Hall on Dec. 9, calling for the city councilors to intervene and prevent MIT from suspending pro-Palestinian student protestors. Sophie Coppieters 't Wallant, President of the MIT Graduate Student Union said, "The fact that MIT is choosing to threaten student livelihood and careers simply because they don't agree with what students are speaking up and protesting for is unacceptable."

Iyengar had until Dec. 11 to appeal the suspension to MIT Chancellor Melissa Nobles.

— Alex Tang



KATE LU - THE TECH

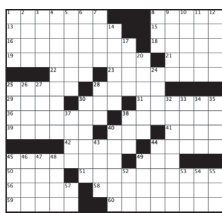
MIT community members enjoy seasonal beverages and sweet treats in Stata at Winterfest 2024, Tuesday, December 10th.

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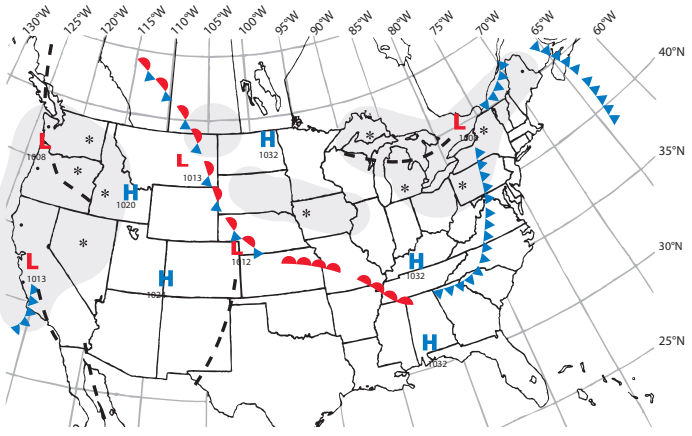


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High Pressure	Trough	Snow	Fog
Low Pressure	Warm Front	Rain	Thunderstorm
Hurricane	Cold Front	Light	Haze
	Stationary Front	Moderate	
		Heavy	

Compiled by MIT Meteorology Staff and The Tech

Happy end of the semester!

By Lou Lahn
METEOROLOGIST

The leaves are falling, the clock moved forward, and the days are shorter, all signaling the beginning of the end of Fall. While the optics suggest the move towards Winter, the temperatures do not with the highs being around 60°F. For those who are spending their first Winter here, heads up, this is not normal. Enjoy the sunny weather before the biting cold and brutal winds emerge.

DECEMBER 12
SITUATION FOR NOON (ET)

Extended Forecast
Today: Sunny, chance of rain. High around 40°F (4°C). West winds around 18 mph.
Tonight: Mostly clear. Low around 28°F (-2°C). West winds around 13-15 mph.
Friday: Sunny. High around 33°F (1°C). West winds around 11 mph.
Friday Night: Mostly clear. Low around 25°F (-4°C). West winds around 8 mph.
Saturday: Mostly sunny. High around 34°F (1°C) and low around 28°F (-2°C). North winds around 6 mph.
Sunday: Chance of rain. High around 40°F (4°C) and low around 33°F (1°C). North-east wind 6 to 13 mph.

MIT holds Life Sciences and Health Collaborative launch event on Dec. 4

MIT HEALS to foster interdisciplinary collaboration in the life sciences

By Vivian Hir
EXECUTIVE EDITOR

On Wednesday Dec. 4, the Institute held the MIT Life Sciences and Health Collaborative launch event in Kresge Auditorium. Abbreviated as MIT HEALS, the full-day event comprised faculty presentations across various disciplines in the life sciences, a mid-day breakout session, and a panel discussion about university-industry-hospital collaboration in the future. The event concluded with a poster session where MIT students and post-docs showcased their research.

The launch began with opening remarks from President Kornbluth. In her speech, Kornbluth outlined the goals of MIT HEALS. One goal of the initiative is to foster collaboration across different domains for life science research, citing AI and economics as examples. Besides promoting collaboration within MIT, the initiative aims to strengthen the Institute's relationships with neighboring hospitals and biopharmaceutical companies. The other priorities of MIT HEALS include cultivating talent for the life sciences at MIT and providing additional funding for MIT life science research projects.

"Overall, MIT HEALS is an opportunity to make our work—as individuals and institutions—collectively add up more than the sum of our parts," Kornbluth stated. "And I believe this effort could not be more timely or more important."

In order to achieve its objectives, MIT HEALS plans to launch many programs that will build talent and nurture cross-functional collaboration. To support graduate students in the life sciences, Flagship Pioneering CEO Nourbar Afeyan PhD '87 will provide additional graduate fellowships under MIT HEALS. For postdoctoral scholars, the Biswas Family Foundation will fund the MIT Health and Life Sciences Collaborative Fellows Program, a competitive four-year program that will allow postdoctoral scholars to address problems in health and medicine.

Additionally, the Charles H. Hood Foundation will help establish the Hood Pediatric Innovation Hub to further advance pediatric research, a program that will be led by Prof. Elazer Edelman '78. Analog Devices, which was founded by Ray Stata '57, SM '58, will help



PHOTO COURTESY OF JAKE BELCHER

President Sally Kornbluth gives her opening remarks at the MIT Life Sciences and Health Collaborative launch event on Dec. 4 at Kresge Auditorium.

start the MIT-MGB Seed Program, an initiative that aims to bring MIT and the Mass General Brigham (MGB) system together for collaboration in clinical research.

After Kornbluth's speech, Dean of Science Nergis Mavalvala opened the keynote by expressing her optimism for the launch of MIT HEALS. Following Mavalvala's introduction was a keynote speech by Prof. Phillip Sharp, Institute Professor and Professor Emeritus who won the 1993 Nobel Prize in Physiology or Medicine. In the keynote speech, Sharp presented a condensed timeline of MIT's role in advancing the life sciences in the last 50 years, starting with the founding of MIT's Center for Cancer Research in 1974 to Kendall Square's biotech hub in the modern day. "I am terribly excited about what MIT HEALS means for MIT and for the country," Sharp said.

The morning proceeded with talks from professors that were divided into three

themes: revolutions, expansion, and systems. After Victory Yinka-Banjo's '25 spoken word performance titled "Systems," the event transitioned to live breakouts that were split into four groups: biosphere, brains, healthcare, and immunology. In each breakout session, MIT faculty members presented their research and then held a Q&A session for participants.

Fiona Li '28, a prospective Course 6-7 major and Course 12 minor, attended the biosphere breakout. "I really enjoyed it because the biosphere is not really something that is big in MIT Biology," Li said. "I liked that they included this because the event was more focused on health and life sciences, but it [the environment] is important."

Grace Zhang '25, a Course 18-C major, attended the healthcare breakout. Zhang also presented at the poster session about quantifying the relationship between healthcare spending and quality of life in the U.S. Her

research supervisor is Prof. Joe Doyle, an MIT Sloan faculty member who discussed his healthcare economics research at the breakout. "It was inspiring to see how much impactful research he was doing," Zhang said. "I thought it was really interesting that he was testing out these different solutions and seeing if they actually worked."

The afternoon session continued with talks about the intersection of the life sciences with other areas, including entrepreneurship and AI. The launch closed off with a panel discussion moderated by Nourbar Afeyan about the importance of bolstering MIT's partnerships with nearby hospitals and biotech companies. "You can't do that by yourself. You can't do that only with a grant," Mass General Brigham President and CEO Anne Kilbanski said. "If you really want to impact human health, you have to think more broadly, and I would say complete the circle."

The MIT HEALS launch concluded with a poster session at Kresge Tent. III undergrad students, PhD students, and postdocs presented their research that covered a wide range of topics, from glycobiology to AI driven protein engineering. The poster topics fell under three broad categories: fundamental discovery, breakthrough synergies, and impacting human health.

One undergrad that presented at the poster session was Lara Ozkan '25, a member of the Conformable Decoders group in the MIT Media Lab. Her research is on a conformable ultrasound breast patch, a noninvasive device that does early detection of breast cancer, which addresses the limitations of current ultrasound imaging methods. "Going to a clinic to get a mammogram is incredibly uncomfortable," Ozkan said. "It is a very tough and strenuous process." The increased accessibility and high impact of the device excites Ozkan. "We're really excited for the future of this technology to catch breast cancer early and increase survivability."

Olivia Orlik '26 at the Grossman Lab does research on a phage defense system. Although phages are viruses that infect bacteria, sometimes the defense systems are present in the phages themselves. Regarding thoughts on the poster session, Orlik enjoyed the event.

"I think it [was] a great opportunity to network and showcase my work," Orlik said.



PHOTO COURTESY OF NATALIE GREEN

Women's Cross Country celebrating the team's first NCAA National Championship

Fall Athletics Awards and Honors

- By Matthew Barnett**

NEWMAC Academic All-Conference Team Awards
Honorees for this award must have a minimum cumulative GPA of 4.35/5.0, achieved second-year academic status, and have been a member of the varsity team for the entire season.

Football (44)
Mahmoud Abdelmoneum '26, Eric Anderson '27, Ken Byrne '25, Evan Comiskey '25, Caleb Davis '27, Rohan Deb '26, Lucky Deignan '26, Michael Dennison '27, Collin DesRoberts '25, Keegan Doody '27, Chase Fishman '27, Griffin Fisk '26, Drew Geoly '26, Paul Gregory '26, Jack Grier '25, Chase Harmon '26, Kyle Heinz '25, Dominic Hess '27, Michael Higgins '25, Ryan Hourican '25, Hilal Hussain '26, Andrew Hutchison '25, Shaunak Joshi '27, Gyeongwu Kim '27, Justin Lee '26, Sanjay Long '25, Jerry Lu '25, Connor McHale '27, Armando Melendez '27, Daniel Monaghan '25, Carson Phelps '27, Billy Reinbold '26, Dalton Rice '26, Luke Schenk '26, Stephen Schulze '26, Thomas Shoales '27, Donny Stralkus '25, Thomas Stueber '26, Alex Theriault '26, Drew Tufo '26, Colin Vollmer '26, Chase Williams '26, Reidyn Wingate '25, and Peyton Worthington '26

Men's Cross Country (19)
Andres Arroyo '25, Pablo Arroyo '25, Charlie Black '27, Jake Cobb '26, Charlie Glass '26, Jacob Hansen Gr., Ziyad Hassan '25, Pau Ilerbaig-Bajona '25, Nate Martinez '27, Nicholas Medearis Gr., Hunter Miller '27, Jaxon Miller '27, Tim Neumann '26, Ayman Noreldaim '27, Simon Opsahl '25, Reece Shuttleworth '25, Yichen Sun '27, Carlos Villa '25, and David Whiteraker '27

Women's Cross Country (13)
Christina Crow '25, Megan Diulus '27, Tessa Everett '26, Lexi Fernandez '26, Kaitlyn Flowers '26, Liv Girand '27, Erin Hovenden '26, Heather Jensen '27, Kali Kraus '27, Lidia Prokopovych '27, Gillian Roeder Gr., Kate Sanderson '26, and Rujuta Sane '26
- Women's Volleyball (14)**
Peyton Brown '27, Elise Echarte '27, Lexi Foland '27, Daphne Gavros '26, Ali Gibbs '26, Ella Gragg '25, Emma Hickman '27, Lauren Keller '25, Ashley Margetts Gr., Kayleigh May '27, Ottavia Personeni '25, Consecrata Rozario Gr., Eileen Sadati '27, and Claire Underwood '26

Men's Soccer (18)
Hernando Ardila '27, Kaleb Asfaw '26, Garrett Dyson '27, Joseph Gross '25, Nathan Guntvedt '25, Aidan Hallinan Gr., Arun Kirk '25, AZ Krebs '26, Nico Mangiafico '27, Paolo Mangiafico '27, Kai McClellenn '26, Dilin Meloni '27, Jack Minor '25, Ethan Reich '26, Adam Snowdown Gr., Nicolas Stone Perez '25, Raymond Wang '26, and Woods Windham '27

Women's Soccer (19)
Natalie Barnouw '25, Lauren Davis '25, Arianna Doss '27, Ashley English '25, Qiana Felician '27, Macy Lehrer '27, Sean Luk '26, Leena Mehendade '26, JoJo Miller '27, Ava Muffoletto '26, Emiko Pope '25, Madelyn Popilek '27, Meagan Rowlett '25, Katherine Ruan '27, Remington Sandell '25, Madeline Seebeck '27, Ayala Sumer '27, Alice Vranka '26, and Emma Wang '27

Field Hockey (18)
Sammi Blocher '27, Shealy Callahan '26, Faith Choe '25, Jordan Dattero '25, Anna Duncan '25, Hannah Hicks '26, Ashley Lederman '25, Bailey McIntyre '26, Marisa Montione '26, Avani Narula '25, Audrey Oh '27, Eva Oppenheim '25, Sarah Stoops '26, Janie Thomas '27, Ingrid Tomovski '27, Jane Tortorella '27, Alice Zehner '25, and Maeve Zimmer '27

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NEWMAC Fall Sportsmanship Team
Honorees for this award are selected by their coaching staff. They are recognized for their demonstrated acts of sportsmanship and ethical behavior that go beyond the sport's playing rules and etiquette.
Men's Cross Country: Carlos Villa '25

Fall Athletics Review:

Women's XC National Champions, Men's XC Finishes 13th, Volleyball Upset at Regionals

- By Matthew Barnett**

A lot has happened in the world of MIT Athletics since the last issue of The Tech three weeks ago. The fall athletic season is over, and the winter athletic season has begun. Before we turn the page to focus on our winter sports teams, we should look back on how our fall teams finished their 2024 seasons.

Women's Cross Country wins NCAA Division III National Championship
On Nov 23, Women's Cross Country took home the program's first National Championship at the NCAA Division III Championships meet in Terre Haute, Indiana. Led by All-American performances from Christina Crow '25, Rujuta Sane '26, and Kate Sanderson '26, MIT posted a field-best 128 points in the 6K race.

National Field Hockey Coaches Association (NFHCA) All-Region Awards
1st Team: Bailey McIntyre '26, Audrey Oh '27, and Ingrid Tomovski '27.
2nd Team: none.

New England Intercollegiate Soccer Association (NEWISA) Senior Bowl Invites
Natalie Barnouw '25, Lauren Davis '25, Ashley English '25, and Emiko Pope '25.

United Soccer Coaches All-Region Team
Women's Soccer
1st Team: Natalie Barnouw '25, Lauren Davis '25, Ashley English '25, Meagan Rowlett '25, and Sean Luk '26.
2nd Team: none.

Men's Soccer
1st Team: Shikhar Montupally '28.
2nd Team: Jack Minor '25

United Soccer Coaches All-Americans
Women's Soccer
1st Team: none.
2nd Team: Natalie Barnouw '25 and Lauren Davis '25.

Men's Soccer
1st Team: none.
2nd Team: none.
- ships in Terre Haute, Indiana. Led by an All-American effort by Sam Coutts '25, the team finished 13th overall, posting a score of 322 in the 8K race.

During the race, MIT moved between 11th and 15th place, eventually finding a pace at the 5K mark that would hold them to the 13th spot.

The members of this competition team finished as follows:
21th - Sam Coutts '25 (24:32.6)
77th - Jacob Cobb '26 (25:02.4)
78th - Pablo Arroyo '25 (25:02.7)
101th - Samir Amin '25 (25:12.7)
130th - Yichen Sun '27 (25:22.8)
201th - Tim Neumann '27 (25:47.6) - not scored
212th - Renne Cooper '28 (25:51.5) - not scored

No. 4 Volleyball Falls to No. 13 La Verne; Eliminated in NCAA Regionals Final
On Nov. 23, Women's Volleyball saw their dominant season come to an end as they were upset by the University of La Verne, 0-3.

Losing their first set 13-25, MIT mounted a strong second frame to attempt to tie up the game. Led by Ali Gibbs '26 and Eileen Sadati '27, MIT established multiple leads but could not hold them as La Verne rallied to keep the set even. With a series of late point exchanges, MIT ultimately dropped the second set 26-28.

MIT jumped out to an early 10-6 lead in the third set, but La Verne responded quickly, going up 14-12. Once they had the lead, La Verne never turned back. They maintained their advantage throughout the set in spite of MIT's best efforts, and put the Engineers away 25-21, securing their spot in the NCAA D-III Quarterfinals.

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The column consists of two pages, with Side A focused on US news and politics and Side B on topics of international concern. The articles featured here are abridged as to contain only their most essential points; readers are directed to read more about an article from its original publication.

Christopher Wray says he'll step down as F.B.I. Director

The F.B.I. director, Christopher A. Wray, said on Wednesday that he intended to resign before the Trump administration took office, bowing to the reality that President-elect Donald J. Trump had publicly declared his desire to replace him. Mr. Wray announced the move while addressing employees on Wednesday afternoon in remarks that tacitly acknowledged the politically charged position the F.B.I. now faces with an incoming president who openly scorns the agency.

"I've decided the right thing for the bureau is for me to serve until the end of the current administration in January and then step down," Mr. Wray said.

— Adam Goldman & Devlin Barrett, FROM THE NEW YORK TIMES
ORIGINALLY PUBLISHED DECEMBER 11, 2024

Trump to be named Time's 'Person of the Year' for second time

Donald Trump once publicly speculated that Time would never name him the news magazine's "Person of the Year." Now, the honor will be bestowed on him twice.

Time will name Trump as this year's choice on Thursday, recognizing the president-elect as the individual or group deemed to have wielded the greatest influence on global affairs "for good or for ill." To celebrate the unveiling of the magazine cover, Trump will ring the opening bell at the New York Stock Exchange, a source familiar with the matter told CNN. Trump sat for a wide-ranging interview with the magazine last month.

— Steve Contorno & Kristen Holmes, FROM CNN
ORIGINALLY PUBLISHED DECEMBER 11, 2024

Southern California fire grows to over 3,000 acres in Malibu amid dangerous conditions

A brush fire that broke out on Monday evening in Malibu Canyon has led to mandatory evacuation orders in parts of Southern California, authorities said. The Franklin Fire began approximately 3 miles north of the Pacific Coastal Highway in Malibu on Monday and has spread to over 3,000 acres with 0% containment.

Some 1,500 firefighters have been deployed to battle the blaze, facing difficult terrain and dangerous Santa Ana wind conditions in the area, which are expected to remain a threat through Wednesday morning.

— Jon Haworth & Leah Sarnoff, FROM ABC NEWS
ORIGINALLY PUBLISHED DECEMBER 10, 2024

House passes Pentagon policy bill roiled by transgender-care debate

The House on Wednesday passed an \$895.2 billion defense policy bill after Democrats blasted the inclusion of a provision — pushed at the 11th hour by Speaker Mike Johnson — to prohibit the military's health-care system from providing specialized treatments to the transgender children of U.S. service members.

The National Defense Authorization Act (NDAA) passed 281-140, with fewer than half of the chamber's Democrats voting in favor of what is typically a bipartisan piece of legislation.

The NDAA sets Pentagon and U.S. national security policy for the year ahead.

— Abigail Hauslohner, FROM THE WASHINGTON POST
ORIGINALLY PUBLISHED DECEMBER 11, 2024

Bankruptcy judge rejects The Onion's bid to buy Alex Jones' Infowars

A bankruptcy judge on Tuesday rejected a bid by The Onion's parent company to buy Alex Jones' far-right media empire, including the website Infowars, ruling that the auction process was unfair.

U.S. Bankruptcy Judge Christopher Lopez said after a two-day hearing that The Onion's parent company, Global Tetrahedron, had not submitted the best bid and was wrongly named the winner of an auction last month by a court-appointed trustee.

"I don't think it's enough money," Lopez said in a late-night ruling from the bench in a Houston court. "I'm going to not approve the sale."

— David Ingram, FROM NBC NEWS
ORIGINALLY PUBLISHED DECEMBER 10, 2024

What to know of the suspect in UnitedHealthcare CEO killing

Alex Sundby, Layla Ferris, Laura Doan, Emma Li, & John Doyle

FROM CBS NEWS
ORIGINALLY PUBLISHED DECEMBER 11, 2024

Luigi Mangione has been charged with murder in last week's deadly shooting of UnitedHealthcare CEO Brian Thompson. The 26-year-old, who was identified earlier as a person of interest, was arrested on firearms and other charges in Pennsylvania on Monday after being spotted at a McDonald's in Altoona amid a massive manhunt for the shooter.

Here's what we know about Mangione:

Two law enforcement sources told CBS News that authorities recovered a notebook from Mangione at the time of his arrest. The sources said in the notebook he wrote that he considered using a bomb but decided on a shooting because it would be more targeted and would not put innocent lives in danger.

While in custody in Pennsylvania, Mangione has not made incriminating statements to NYPD investigators, according to police.

Fingerprints found on a water bottle and protein bar near where Thompson was killed match the fingerprints taken from Mangione when he was booked into jail in Pennsylvania, NYPD Commissioner Jessica Tisch said Wednesday. Police also told CBS News that fingerprints on a phone found at the scene are a match to Mangione's.

Investigators also matched a "ghost gun" that police found with Mangione in Pennsylvania to three 9 mm shell casings from the shooting in New York, according to the NYPD.

The fingerprint match was first reported by CNN. It's the first publicly announced forensic evidence linking Mangione to the crime scene.

The NYPD received over 400 tips to its Crime Stoppers hot-

line about the case. All of the tips were vetted, and police said 30 were helpful.

The New York City Police Foundation was offering a reward of up to \$10,000 for information. They will vet the tips and determine who gets the reward. Separately, the FBI offered a reward of up to \$50,000 for information leading to an arrest and conviction.

Investigators' working theory for the motive behind the shooting is animosity toward the health care industry. The NYPD said it appears Mangione suffered a debilitating back injury on July 4, 2023, that required a visit to an emergency room and subsequently screws on his spine, according to images posted on social media.

According to the NYPD, Mangione was in possession of notebook paper that had handwritten notes that expressed disdain for corporate America, in particular the health care industry.

Trump takeover begins as he holds court from Palm Beach

Alayna Treene, Kristen Holmes, & Steve Contorno

FROM CNN
ORIGINALLY PUBLISHED DECEMBER 11, 2024

The epicenter of Donald Trump's transition is gradually shifting from south Florida to Washington, DC, to prepare for the president-elect's return to the country's seat of power, even as he prefers to bask in the aftermath of his electoral triumph from Mar-a-Lago.

Key allies are shepherding Trump's Cabinet picks through a gauntlet of Capitol Hill meetings, working to assuage lawmakers' unease amid a tangle of controversies surrounding some of them.

Other advisers have decamped to the nation's capital to set the stage for Trump's first actions in the Oval Office.

And some incoming officials have finally engaged with their outgoing counterparts — a traditionally uneventful handoff delayed this time for weeks until

Trump transition leaders signed mandatory agreements with the Biden administration.

People who work on Trump's advance team have also moved operations to DC, where planning on his second inauguration is well underway. Working out of their new digs in the General Services Administration building, they are working with Secret Service and touring venues for inaugural balls and other ancillary events in anticipation of January 20 as they piece together the lead up to Trump's White House arrival, sources involved in the planning told CNN.

Trump-aligned groups are also acquiring office space inside the Beltway, looking to capitalize on his win as DC lobbyists are seeking ways to gain access to the incoming administration, people familiar with the conversations told CNN.

The northern migration also includes some of Trump's longtime staff who stayed by his side after he left office or joined his political operation after he announced his

plans to run again. Many of them moved to West Palm Beach as he plotted his political comeback from his nearby estate.

Now, a Florida takeover of Washington is forthcoming and the DC real estate market is flush with these loyalists looking for new homes and to build out their staffs. "Part of the reason we're all descending on DC so early is because the nominees were landed quicker, the sub-Cabinet is starting to form, policy teams are in place, and so what's left is figuring out where the hell we're going to live and staffing up," one Trump adviser said.

"Everything is oriented to being as ready as humanly possible."

All the while, Trump remains largely out of sight at Mar-a-Lago — except by those with access to his exclusive Palm Beach Club. His scaled-back public schedule has included a quick trip to Paris for the reopening of the Notre Dame Cathedral, and on Thursday he will appear at the New York Stock Exchange.

After Biden son's pardon, W.H. to consider broader clemency

Bianca Flowers

FROM REUTERS
ORIGINALLY PUBLISHED DECEMBER 6, 2024

The White House is listening to demands for President Joe Biden to extend the same grace to thousands of people wronged by the U.S. judicial system as he did to his son Hunter, officials say.

Since Biden's pardon of Hunter on Sunday, a growing chorus of civil rights activists and lawmakers have called for broader clemency for other people they believe were unfairly convicted or sentenced.

Defense attorneys and civil rights groups are ramping up efforts to highlight compelling cases, working in conjunction with state legislators to draft letters to the White House and launching digital campaigns urging action to commute sentences or issue pardons for Americans they believe are wrongly convicted or serving excessive terms for nonviolent offenses.

The White House is discussing the idea of broader pardons after Hunter, including those convicted

of nonviolent drug offenses and people civil rights groups have identified as unjustly incarcerated, sources say. A senior administration official said there will be a number of pardons for people who have served long sentences.

"There's going to be more to speak to in the upcoming weeks," White House press secretary Karine Jean-Pierre said on Friday, when asked about the demands and the disparity of Black men often face in the U.S. justice system. She noted the president's pardon of marijuana convictions and other commutations in the past. "He's taking this very seriously," she said.

A year ago, Biden pardoned thousands of people with federal marijuana charges. In June, he started a process to pardon all U.S. veterans convicted by the military for gay sex, which was illegal until 2013.

Marc Morial, president of the National Urban League, told Reuters, "there are multiple conversations taking place" among a coalition of organizations to push Biden

for clemency before he leaves office in Jan. 20.

The top Democrat in the U.S. House of Representatives, Hakeem Jeffries, on Tuesday called on Biden to pardon some "working-class Americans."

The Congressional Black Caucus has worked with the NAACP and is in favor of clemency, particularly because of the disparate incarceration rate of African Americans.

"The Congressional Black Caucus has worked on legislation from the First Step Act to the executive orders dealing with federal offenses dealing with marijuana. These are areas that we believe should be high priority for the president to consider," Democratic House member Steven Horsford told a press briefing.

Biden signed an unconditional pardon for his son on Sunday and said he believed Hunter had been selectively prosecuted and targeted unfairly by the president's political opponents. Hunter, 54, was prosecuted for tax offenses and charges related to possession of a firearm.

After toppling Assad, can Syria's rebels rebuild a shattered state?

Loveday Morris & Abbie Cheeseman

FROM THE WASHINGTON POST
ORIGINALLY PUBLISHED DECEMBER 12, 2024

After sweeping into this capital city with ease, exposing the hollowness of the Assad regime after more than half a century of dictatorial rule, Syria's rebels now face the more daunting task of governance.

As forces from Hayat Tahrir al-Sham, the Islamist group that led the charge, advanced steadily from their home base in the north to the gates of the presidential palace, they released conciliatory messages on social media reassuring minorities they would not be persecuted and emphasizing a commitment to a Syria for all Syrians.

Now in charge of a newly hopeful but still wary nation, HTS is confronted with vexing challenges. The group will need to consolidate control over a patchwork of rebel forces and demonstrate political inclusivity, which will be key to getting relief from international sanctions.

Most critically, the rebels must allay public fears that they will seek to replace Assadism with their own form of absolute rule.

For now, the group's political plan revolves around exporting its government from Idlib — the northern province where it built up organizational power in recent years — to Damascus. It is too soon to tell how HTS's model of local administration will translate on a national scale, as it expands its area of control from a small, conservative Sunni Muslim enclave to a vast swath of territory home to many sects and ethnicities.

Even in Damascus, the newcomers are still mostly unknown. At a store selling freshly printed Syrian revolutionary flags Wednesday, shopkeeper Fadi al-Mously couldn't name the country's new prime minister, Mohammed al-Bashir, appointed by HTS this week.

Whoever he is, "we don't want him," Mously said. "We want elections."

Outside the Interior Ministry,

the police guards were all from Idlib and wore patches with the insignia of the Islamist government there. They conferred on who was now in charge.

It was Mohammed Abdulrahman, formerly the interior minister of HTS's "Salvation Government" in Idlib, now installed as interior minister for all of Syria. His media adviser, Ahmed Badawi, confirmed he would stay in the role until elections next year.

There will be "coordination" with elements from the old regime, Badawi said. "We didn't come to take rule, the government is for all Syrians," he added.

Assad's old police forces are nowhere to be seen on the streets of Damascus, though HTS officials are trying to get some of them back. Those who defected will be given priority, Badawi said.

Within 48 hours of taking the capital, Abu Mohammed al-Jolani, HTS's self-styled commander in chief, ordered the entire public sector back to work.

Sudan again tops IRC global humanitarian crises watchlist

Fanny Brodersen & Vanessa Gera

FROM ASSOCIATED PRESS
ORIGINALLY PUBLISHED DECEMBER 10, 2024

A 92-year-old Japanese man who lived through the American atomic bombing of Nagasaki described on Tuesday the agony he witnessed in 1945, including the charred corpses of his loved ones and the ruins of his city, as he accepted this year's Nobel Peace Prize on his organization's behalf.

The prize was awarded to Nihon Hidankyo, a grassroots movement of Japanese atomic bombing survivors who have worked for nearly 70 years to maintain a taboo around the use of nuclear weapons. The weapons have grown exponentially in power and number since being used for the first and only time in warfare by the United States on Nagasaki and Hiroshima in 1945.

The bombings pushed Japan to surrender to the Allies. They killed some 210,000 people by the end of 1945, but the full death toll from radiation is certainly higher.

As the survivors reach the twilight of their lives, they are grappling with the fear that the taboo against using the weapons appears to be weakening. It was a concern expressed by the 92-year-old survivor, Terumi Tanaka, who delivered the acceptance lecture in Oslo's City Hall to an audience that included Norway's royal family.

"The nuclear superpower Russia threatens to use nuclear weapons in its war against Ukraine, and a cabinet member of Israel, in the midst of its unrelenting attacks on Gaza in Palestine, even spoke of the possible use of nuclear arms," Tanaka said. "I am infinitely saddened and angered that the nuclear taboo threatens to be broken."

That concern drove the Norwegian Nobel Committee to award this year's prize to the Japanese organization, though it had honored other nuclear non-proliferation work in the past.

Jørgen Watne Frydnes, the chair of the committee, said in introduc-

ing the laureates that it was important to learn from their testimony as the nuclear dangers grow.

"None of the nine countries that possess nuclear weapons — the United States, Russia, China, France, the United Kingdom, India, Pakistan, Israel and North Korea — appear interested in nuclear disarmament and arms control at present," he said. "On the contrary, they are modernizing and building up their nuclear arsenals."

He said the Norwegian Nobel Committee was calling upon the five nuclear weapon states that have signed the Treaty on the Non-Proliferation of Nuclear Weapons — the U.S., Russia, China, France and the U.K. — to take seriously their obligations under the treaty, and said others must ratify it.

"It is naive to believe our civilization can survive a world order in which global security depends on nuclear weapons," Frydnes said. "The world is not meant to be a prison in which we await collective annihilation."

French government collapses in no-confidence vote

Amy Walker

FROM BBC
ORIGINALLY PUBLISHED DECEMBER 5, 2024

The French government has collapsed after Prime Minister Michel Barnier was ousted in a no-confidence vote.

MPs voted overwhelmingly in support of the motion against him — just three months after he was appointed by President Emmanuel Macron.

Opposition parties had tabled the motion after the former Brexit negotiator controversially used special powers to force through his budget without a vote.

It marks the first time the country's government has collapsed in a no-confidence vote since 1962.

The development will further France's political instability, after snap elections in summer led to no single group having a majority in parliament.

MPs were required to either vote yes or abstain from Wednesday's vote, with 288 votes needed for the motion to pass. A total of

331 voted in support of the motion.

Barnier is now obliged to present the resignation of his government, and the budget which triggered his downfall is defunct.

However, he is likely to stay on as caretaker prime minister while Macron chooses a successor.

Both the left and far right had tabled motions of no-confidence after Barnier pushed through reforms to social security by invoking presidential decree on Monday, after failing to win enough support for the measures.

The left-wing alliance New Popular Front (NFP), which won the most seats in the parliamentary elections, had previously criticized Macron's decision to appoint centrist Barnier as prime minister over its own candidate.

Alongside the far-right National Rally (RN), it deemed Barnier's budget — which included €60bn (£49bn) in deficit reduction — unacceptable.

Marine Le Pen, the RN leader, said the budget was "toxic for the French".

Ahead of the vote, Barnier told the National Assembly that voting him out of office would not solve the country's financial problems.

"We have reached a moment of truth, of responsibility," he said, adding that "we need to look at the realities of our debt."

"It is not a pleasure that I propose difficult measures."

In an interview with French broadcaster TF1 on Wednesday, Le Pen said there was "no other solution" than to remove Barnier.

Asked about the French president's prospects, she replied: "I am not asking for the resignation of Emmanuel Macron."

However, Le Pen added that "if we do not respect the voice of voters and show respect for political forces and respect for elections," then pressure on the president will "obviously be stronger and stronger."

Macron, who has returned to France following a state visit to Saudi Arabia, is due to give a televised speech to the nation on Thursday evening.

South Korea's ruling party backs impeachment as president refuses to step down over martial law

South Korea's ruling party has thrown its support behind attempts to impeach embattled President Yoon Suk Yeol over his ill-fated decision to declare martial law that sparked a political crisis and widespread public anger in the country.

The announcement came moments before Yoon delivered a defiant speech on Thursday in which he justified his hugely controversial martial law decision, rejecting growing calls from across the political spectrum for him to stand down.

— Gawon Bae, Jerome Taylor & Helen Regan, FROM CNN
ORIGINALLY PUBLISHED DECEMBER 11, 2024

Tycoon Adani pulls U.S. loan request to finance strategic Sri Lanka port

Indian billionaire Gautam Adani has withdrawn his request for a U.S.-backed \$553 million loan to build a terminal for a deepwater port in Sri Lanka — the latest fallout since his indictment in the United States last month on fraud-related charges rocked U.S.-India relations.

The American financing had been touted by the Adani Group as a strong endorsement from the U.S. government, and had been seen as a focused effort by Washington and New Delhi to counter Beijing's rising influence in the Indian Ocean. The company disclosed to Indian stock markets Tuesday that it will forgo the loan from the U.S. International Development Finance Corporation and complete work on the port via internal financing.

— Karishma Mehrotra & Anant Gupta, FROM THE WASHINGTON POST
ORIGINALLY PUBLISHED DECEMBER 11, 2024

Ghana's ex-leader is declared the presidential election winner and pledges 'reset' in a bad economy

Ghana's former leader John Dramani Mahama was declared the winner of the presidential election on Monday and pledged a "a life of limitless opportunity" for citizens after voters vented their anger over the country's worst cost-of-living crisis in a generation.

Previously president of the West African nation between 2012 and 2017, the 65-year-old Mahama received 56.5% of votes cast, or 6.3 million votes, the electoral commission said. His main opponent from the current governing party, Vice President Mahamudu Bawumia, conceded defeat on Sunday and got 41%, or 4.6 million votes.

— Francis Kokutse & Monika Pronczuk, FROM ASSOCIATED PRESS
ORIGINALLY PUBLISHED DECEMBER 9, 2024

Israel strikes Syria 480 times and seizes territory as Netanyahu pledges to change face of the Middle East

The collapse of the Assad regime has prompted a punishing military response from Israel, which has launched airstrikes at military targets across Syria and deployed ground troops both into and beyond a demilitarized buffer zone for the first time in 50 years.

The Israeli military on Tuesday said it had carried out about 480 strikes across the country over the past two days, hitting most of Syria's strategic weapon stockpiles, while Defense Minister Israel Katz said the Israeli navy had destroyed the Syrian fleet overnight, hailing the operation as "a great success."

— Mick Kreuer, FROM CNN
ORIGINALLY PUBLISHED DECEMBER 11, 2024

Sudan again tops IRC global humanitarian crises watchlist

Sudan - for the second year in a row - topped a 2025 watchlist of global humanitarian crises released by the International Rescue Committee (IRC) aid organization on Wednesday, followed by Gaza and the West Bank, Myanmar, Syria and South Sudan.

The New York-based IRC began the watchlist more than 15 years ago as an internal planning tool to prepare for the year ahead, but chief executive David Miliband said it now also served as a call to action globally.

The report said 305.1 million people around the world are in humanitarian need - up from 77.9 million in 2015 - and that the 20 countries on the IRC watchlist account for 82% of them. Miliband described the numbers as "crushing."

— FROM REUTERS
ORIGINALLY PUBLISHED DECEMBER 11, 2024

FIFA confirms Saudi Arabia as 2034 World Cup host despite concerns

Saudi Arabia was officially confirmed Wednesday by FIFA as host of the 2034 World Cup in men's soccer, giving the oil-rich kingdom its biggest prize yet for massive spending on global sports driven by Crown Prince Mohammed bin Salman.

The Saudi bid was the only candidate and was acclaimed by the applause of more than 200 FIFA member federations. They took part remotely in an online meeting hosted in Zurich by the soccer body's president Gianni Infantino.

"The vote of the congress is loud and clear," said Infantino, who had asked officials on a bank of screens to clap their hands at head level to show their support.

— Graham Dunbar, FROM ASSOCIATED PRESS
ORIGINALLY PUBLISHED DECEMBER 11, 2024

FEATURES

Amphibious Achievement: A dual athletic, academic mentorship program

Wang '26: "Seeing the high schoolers try their best makes you feel inspired that you can be someone that can help others."

By Vivian Hir
EXECUTIVE EDITOR

Every Sunday morning, Elizabeth Wright '26 wakes up early to arrive at Lobby 7 at 8:15 a.m. to meet high school students who come around 8:30 for breakfast. By 9 a.m., she and other MIT student mentors start coaching high school students rowing at the MIT boathouse, teaching students rowing techniques on the machine.

Wright is part of Amphibious Achievement (a.k.a. Amphibiz), a MIT student service organization that mentors low-income high school students from the Boston area through a combination of athletics coaching and academic tutoring. This semester has around 25 student mentors and 45 high school students who are called "Achievers." The program consists of ten sessions across the semester, and each session is divided into two parts: athletics training from 9-11 a.m., and academics from 11:30-1:30 p.m.

In the athletics session, students either learn rowing or swimming by doing practice drills to build their physical technique. In both rowing and swimming, students are divided into a novice and experienced group.

For rowing practice sessions, the experienced group use the boats to practice their stroke technique, whereas the novice group learn the stroke technique using rowing machines in the boathouse. At the end of each session, Achievers do a two-minute test on the rowing machine to track their PR (Personal Record) progress over the course of nine weeks. For the swimming practice sessions, mentors teach Achievers various swimming skills, from kicking and breathing patterns to strokes. To measure their

progress, novice swimmers do a PR test of 25 yards, while experienced swimmers do 50 yards.

The purpose of integrating athletics into the mentorship program is that athletics can teach Achievers skills that are also important for academic success, especially grit and resilience. For Director of External Relations Elizabeth Wright '26, she aspires to teach students that the lessons she learned from swimming – chasing a personal goal and dealing with setbacks – are relevant in other contexts like education. Besides developing grit, the athletic training helps

the other person," Santiago said. "With PRs in athletics, we really try to emphasize focusing on your perspective and how much you can improve."

A lot of Achievers enter the program not knowing how to swim or row, but develop a passion for these new sports by the end of the program. "I had never done rowing and had rarely used rowing machines before Amphibiz," Lukas G. said. "But I've felt a new passion for rowing since joining, and I believe this is the next step in my fitness journey."

The academic session is divided into

training, but also they find the academic mentorship helpful and valuable. "Joining Amphibiz helped me learn key concepts in programming and Python, which has benefited me immensely," Alfredo V. said. "Last year, I won first place at my schools' science fair, and I owe my thanks to the mentors at Amphibiz for having helped me throughout the process." The positive, supportive community in Amphibious Achievement has convinced many Achievers to stay in the program for multiple semesters. In fact, some have been in the program for all four years of high school.

What makes Amphibious Achievement meaningful for MIT students is the positive impact that the mentorship program has on high school students. "Seeing the high schoolers try their best makes you feel inspired that you can be someone that can help others," Executive Director Kimberly Wang '26 said. Santiago's motivation to be part of the organization echoes Wang's. "Even though you have that one-on-one connection to know one Achiever really well, you also get to know other Achievers, and it creates a family bond," Santiago said.

three components: deep dive, lessons, and PR groups. In deep dive, mentors work with students one-on-one on topics that the Achievers want help on, such as homework help or college application advice. After deep dive, mentors teach Achievers lessons that encompass a wide range of subjects, from entrepreneurship to engineering. Last but not least, Achievers work on a semester-long project on a subject of their choosing, which are called PR (Personal Record) groups. Recent PR groups include underwater robots, 3D design, and computer science.

Not only do Achievers enjoy the athletic

Although one major part of Amphibious Achievement focuses on swimming and rowing, not all mentors share this athletic background. Executive Director Sharaf Rashid '25 didn't swim or row in high school, but what inspired him to join Amphibious Achievement is "serving the under-resourced community," as he identifies as a FLI student.

Like the Achievers, the mentors find the close connections that they develop with the student community to be deeply meaningful. "You see everyone grow. You see their struggles and their triumphs, and you can't do that with a lot of programs," Sullivan said.



PHOTO COURTESY OF TEAGAN SULLIVAN

Students and mentors in Amphibious Achievers take a group photo along the Charles River.

students grow in various other ways, from building confidence to focusing on personal growth.

"One of my Achievers came into Amphibiz pretty shy," Director of Campus Relations Teagan Sullivan '26 said. "I have seen him become more confident in himself that he can be a leader, and I see that reflected in academics." On the other hand, Session Planning Coordinator Kevin Santiago '27 encouraged students to focus on their own improvement instead of others, which led to a change in mindset among the Achievers. "A lot of times, high schoolers can get into the mindset of wanting to compete against

SIXPENCE

lowercase

"gently crumbling and breaking down/slowly wrapping around my neck to choke me/as the person I once was is killed" -reol, "no title"

By Vi Trinh
ASSOCIATE CAMPUS LIFE EDITOR

"oh god, why do you write in all lowercase?" it's my first copy meeting, and one of the copy staff is reading my article. "this feels wrong..."

i thought about it for a second, and then, with a bright, frosh-y glimmer in my eyes, i smiled.

"because i want to!"

grammar reveals more about oneself than one might expect. for example, my boyfriend writes with proper punctuation and capitalization for everything that he writes, which sometimes makes their texts more hilarious than he intends them to be. his intimidating, stern demeanor contrasts his vibrant, tsundere personality¹, both of which are reflected within their writing. some notable examples are²:

- "I am not adorable."
- "I will kill you."
- "3-6-5, party girl (I'm bumpin' that)."
- "She's so dead..."
- "If you become a junkie, I'm breaking up with you."

in a similar vein of oddness, why do i write

my articles in lowercase? especially with a medium like a newspaper, which is typically more professional, it's a strange stylistic choice. most people would choose to embed their writing quirks in their structure, tone, word choice, prose, or some other facet of the arrangement-of-words-and-thoughts that writing is. most people don't even think about the typography of their writing besides a simple "ah, this font makes my words feel more special and fancy than i think they are."

the easiest answer is that writing in all lowercase is aesthetically pleasing to me. it's cute with this sort of mecha, contemporary, empty feel to it. it's this surreal experience that feels oh-so-familiar but oh-so-wrong to the point where you can't do anything but be taken aback by it. writing in lowercase is gentle, like a whisper you utter into a lover's ear, a breeze upon a flower's leaf, or someone's fingers running through your hair.

the slightly more complex answer is that writing in all lowercase compels people — the readers and the writer alike — to read the words on the page more carefully, a piece in all lowercase has no visual start to the beginnings of its sentences, so it's much harder to skim the text. where does one idea

end and another begin? at what point can you blend the words together without muddling messages and significance? when i started writing for the tech (which was also the first time i wrote for myself), i thought about what i wanted out of publishing my pieces. why make my thoughts public, for people to dissect and consume and toss once they've gotten what they wanted? my words are delicate and my thoughts are vulnerable, so why should i place them where they can be broken?

writing in lowercase forces people to look for your voice. it means they're listening to you, and this is all i want.

i spent many years being loud in an attempt to be heard, which is much, much different from being listened to. i tried very hard to get people's attention by saying absurd things and talking so that the entire room could hear. as long as my voice reached someone, i thought, then i could quiet down. but what i didn't realize about being loud is that people will end up tuning you out; they'll start running away while covering their ears because they can't take the noise anymore.

watching them flee is the most painful part about being loud.

there's this common trope in modern romance media of "wanting to be wanted," which sounds all complex and romantic and deep on the surface, but it's really a miserable prophecy. people aren't going to know what makes you feel loved nor that you want to be loved in the first place unless you tell them. being listened to is oddly similar to being loved; perhaps it's because people listening to you means that they know you more, and to be known is to be loved.

in the same way you can't demand people to love you by complaining how unloved you feel, i realized you can't force someone to listen to you by yelling about how ignored your words are. so i became more direct with what i wanted. i sent my friends links to my articles, substacks that conveyed feelings that i couldn't find words for, and tweets that they'd enjoy. i asked them to listen to me when i spoke, and they did just that, and in return, i do the same.

1. if you read this, please don't kill me for calling you a tsundere...
2. i have actually received all of these texts. i will not provide context for any of them.

ADVICE

Dealing with neighbors and crushes

Advice for when the stakes are elevated

Someone above (or beside?) me keeps making loud noises. Sounds like moving furniture. I gave the person I thought was above me chair pads but it hasn't changed anything.

Dear Noise Hater,

Auntie's family wanted to address this issue, as well as expand and generalize a bit in ways that may be more applicable to others. To address your issue specifically, though, a few general guiding suggestions:

Identify the established quiet hours for your dorm/floor/suite/etc. If you don't have any rules right now, now is the time to reach out and codify them. Are they always the same? Different during finals week? Different on weekends? Some people might just assume that "quiet hours" is at a different time than you.

Assuming the noise is late at night and repetitive, it's time to escalate, but gently. For example, loudly cursing out an entire community for the noise of a few on a public forum would be a bad move. But walking to the offender, knocking firmly, and asking them to stop should work fine, in the short term. Of course, confronting a stranger like this can be anxiety-inducing, so it's not for everyone. Sending them a text or leaving a friendly note can also work!

If it's a continuous problem, you can escalate to a GRA to help mediate — and at this point, you have enough evidence that you tried to stop things.

In general, most neighborly problems can be solved by respectful confrontation and problem-solving: texting, asking in person, offering solutions. Most of the time, people just need to hear the same thing a few different ways for it to click.

Sometimes you have to cut your losses. We're guessing we'll get questions where the conflict is much more tense and stressful and prolonged. We're glad this isn't at that point yet (from what you've told us.)

Best of luck,
Auntie's Family

Idk that this is a dilemma. Just me tapping and getting stuff off my chest. I'll give each person a name different (very different) from their real names. Situation 1) The 1st, let's call him Thomas Jefferson because he gives me elegant yard outdoorsman vibes. Like "I live in a cabin in a grove near the city where I read books in a trench coat and my hair always looks good without trying" vibes. The 2nd, let's call him Peter Pan. I can say less because Peter Pan says it all. This man is so attentive, so thoughtful, and he's always listening even when you think he isn't. But apparently dude can also tear up the dance floor. The 3rd, let's call him Dr. Seuss. He's a sophomore studying Biomed Engineering at [REDACTED BY AUNTIE] who I went out to a cafe with during Thanksgiving break since he asked if I was home for the holiday to meet up. The 4th, let's call him Thomas. He makes me feel the same way Thomas in Maze Runner did when Teresa showed up. Like I'm standing right here in front of the tv and all you can pay attention to is Teresa. I mean I guess in real life Teresa is an amazing person so the situation, though analogous, is different. I guess my problem is that I don't know how to figure out whether I like someone, or whether I just like the idea of them.

Dear Confused as Hell,

We appreciate your question and applaud you for recognizing that you may only like the "idea" of someone rather than their actual self. If you find yourself projecting your own desires onto other people — making up aspects of their character, for example, even when you don't actually know them — then, maybe, it's time to step back and re-evaluate. Have you heard of something called limerence? It's kind of when you're infatuated with someone, but you're driven by a desire to have your feelings reciprocated, often in a parasocial way. Entering a state of limerence can be fun at first, but it's draining and unrealistic.

Now, let's get to the core of your question. Our answer is perhaps frustratingly simple: spend more time with each of these people, as that's the best way to see how someone acts. Alongside paying attention to what other people — notably, people you trust — say about them, your first-hand experience is also important. Are they nice to you? Are they respectful to other people? Most importantly, can you two lay the foundation for a strong long-term relationship? If you want to figure out if you like someone, you shouldn't be afraid of one of these answers being "no."

You might wonder what the best way to spend more time with these people is, but we can't say — only you can. For Dr. Seuss, stay in contact via text and video chat during the school year, especially since he's not in Boston. For the rest, do what feels organic to you, whether it's lunch, dinner, psetting, running to get ice cream, gallivanting around Newbury, sailing, or anything else. We encourage you to not be afraid of rejection: it's part of life. If any of the other three guys repeatedly declines your invitations to hang out, that could be a sign that maybe they're not feeling the same way, and that's perfectly okay! We hope that this gives you closure instead of sorrow.

Ultimately, we think you can't be afraid of shattering any idealizations you may have about your semi-crushes. The best solution is to spend time with them and get to know who they really are, outside of your head. First, absorb all the information about them that you can, and then think about next steps. If you want to pursue a relationship, hats off for doing so responsibly and thoughtfully. Or maybe you'll conclude that a relationship is not the move now. Either possibility is valid.

Best of luck!

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**The Berlin Philharmonic
mesmerizes audience
with its passionate
performance**

PHOTO COURTESY OF ROB DAVIDSON

By Vivian Hir
EXECUTIVE EDITOR

Nov. 20, 2024

Despite the ominous tone, the movement closed off strongly with the rich, jubilant sounds of the brass section that were like ringing church bells. Following the first movement was Adagio, the second movement that began with quiet pizzicatos played in triplets and then was followed by the oboe quickly entering the passage. The oboe solo was beautiful for its expressive

A lifelong journey of music and singing

By Vivian Hirsh
EXECUTIVE EDITOR

This interview has been edited for clarity.

It was a learning experience for me. I noticed that the vocal timbre was quite different. The Concert Choir has a mixed bag of voices, which is also what makes its unique sound. But I started noticing there were some other more mature sounding voices. I wrote to Bill


said, "If you are interested in learning about this, you should take lessons." So he suggested a couple of people that I could reach out to, and the first one that responded to me was Tom Gareau. I studied with him for a year before I was able to audition for Chamber Chorus and then the Emerson/Harris program.



PHOTO COURTESY OF DANNY GOLDFELD

EECS Lecturer Srinivasan ("Sri")
ghuraman SM '17, PhD '20 performs
the 2022 Emerson/Harris solo recital.

At the end of the day, we are all striving to express ourselves in some way or another. That is how we give back to society. This is me and I want to tell you or show you something about me. I think music is one of those ways. It is coming through the lens of some piece or some art. It serves as an outlet to put something out there, and it is somehow more tangible for a lot of us than, say, writing a theorem.



Music takes you a
lot closer to some-
thing very deep
and abstract,
but neverthe-
less present.
There are
times when
you are listen-
ing to a piece
and time just
compresses.
You are just
there with that one
thing, and it's a very
special feeling. I think
we just yearn for that.
You keep wanting to re-
create that moment, be-
cause it's something that's
so special. That's why I keep
doing it.

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EVENT REVIEW

Book Event: *Innovation in Isolation: The Story of Ukrainian IT from the 1940s to Now.*

The Ukrainian-American software company MacPaw and the MIT Museum present a day of science, art, and celebration of Ukrainian resilience

By Veronika Moroz

On Saturday, Nov. 17, the MIT Museum partnered with the Ukrainian-American software company MacPaw to host an event celebrating their upcoming book: *Innovation in Isolation: The Story of Ukrainian IT from the 1940s to Now.* In addition to being an opportunity for people to peruse the book, the event featured a raffle and remarks from guest speakers including MacPaw leadership and Massachusetts Secretary of the Executive Office of Economic Development Yvonne Hao.

A Ukrainian Tech Giant

MacPaw is a bootstrapped company started in 2008 by Oleksandr Kosovan, who developed its first software, CleanMyMac, as a college student. Since then, the company has grown to over 500 people and developed applications such as Spybuster and CleanMyiPhone, with some estimating that twenty percent of the world's Mac computers have MacPaw technology installed on them.

Even now, with Russian president Vladimir Putin's full-scale invasion of their country, MacPaw is still based in Kyiv, with a new branch opening in Cambridge over the last year. "We have interruptions for the war, I mean, day to day within meetings, but also we're always conscious of the fact that they're going through a very difficult time right now," reflected Ethan Wayne, a Public Relations Specialist at MacPaw's Boston office. "But it also gives a lot of meaning to the work we do, especially events like this: fundraisers for the MacPaw Foundation where we are able to support our colleagues in Kyiv and the people of Ukraine."

Kosovan, now the CEO, is remarkably soft-spoken for someone running a tech company amidst a full-scale invasion. "Well this is my profession, this is why I do it, like I really love to create some beautiful stuff for people," he told The Tech reporters. "It happened to be that I'm really passionate about Apple computers, so I started this software company in Ukraine to create beautiful software for Apple platforms."

This success is far from atypical, according to Reed Sturdevant, a general partner at the venture capital firm Engine Ventures which was put into business by MIT. Sturdevant, who used to co-run the Techstars startup accelerator in Boston, has already witnessed the journeys of several Ukrainian companies. "Their founders are typically very very technical, and incredibly fast-working software developers, so the challenge is trying to get those companies that are founded in Ukraine to reach bigger markets. That is what brings many of those companies to Boston. Unlike San Francisco, we're closer in time zone and travel, so it's a good stepping stone to get into the broader US Market," Sturdevant said.

In 2018, the company launched its Corporate Social Responsibility (CSR) initiative, which operates through the MacPaw Foundation. "When the company's successful you start thinking about okay, what influence, what impact can you have on the environment around you," Kosovan remarked. Ultimately, they "donated a million dollars to CSR projects, and the team picked out different projects they'd like to work on."

One of those projects is Innovation in Isolation, which emerged as an idea in 2018 when the company hosted a hackathon at the Kyiv Polytechnic Institute in Ukraine. "We just wanted to spread the word about Ukrainian innovation and tech," said Sergiy Kryvoblotskyi, the head of MacPaw's technology R&D. "Then, COVID happened, and we kind of postponed this idea for better times. But, better times never happened because the full-scale invasion started and what we observed is that Russia tries to get rid of our presence by vanishing our past. So, we took this idea back to life and we decided that it would be our goal to engrave our history into paper and the internet."

Kryvoblotskyi has his own theory for why Ukrainian technology is flourishing amidst the invasion: "There is a rule that



PHOTO COURTESY OF VERONIKA MOROZ

The front cover of *Innovation in Isolation: The Story of Ukrainian IT from the 1940s to Now.*

innovations happen when there is a constraint," he told the event audience. "Unfortunately, the war is a huge, terrifying, disastrous constraint. People just have to be innovative to survive. That's why Ukraine is one of the world's leaders in MITech, BioTech, Security, AI, you name it. But the price that we pay for that innovation, unfortunately, is very high."

Telling a Hidden Story

Innovation in Isolation aims to address how and why Ukrainian tech companies – including MacPaw but also Grammarly, GitLab, and People.ai – have been emerging from seemingly nowhere and flourishing on an international scale.

"The history of Ukrainian IT is really rich, and spans decades and decades, and much of this history has been appropriated by Russia, by the Soviet Union," said Hanna Leliv, one of the people translating Innovation in Isolation into English.

Work on the book involved collaboration both within MacPaw and across the Ukrainian tech industry. "More than 20 people took part in this collective report. We did dozens of interviews with people who are still alive, in order to bring all of this information together," MacPaw CEO Oleksandr Kosovan recalled. "There was a perception that there was a huge USSR that was a powerful industrial machine, but in reality a lot of things especially connected

to IT technology were actually being done in Ukraine by Ukrainians."

To match the content of the book, graphics designer Aliona Solomadina developed two aesthetics, one for the past and one for the present. "The historical part is more like an encyclopedia, and has style with a minimalist functional aesthetic that emphasizes simplicity, clarity, purpose," she explained. To develop this design, she spent hours doing research in the City Polytechnic Museum in Kyiv, while also drawing on her own experiences with technology, including the punch cards her aunt used to bring home from her job at a factory in Kharkiv.

For the second part, which focuses on modern Ukrainian technology, she "aimed to capture dynamic movement through the aesthetic nature of print" and sections that "can be viewed as scrolling webpages." The second part is in color, and focuses on a variety of modern Ukrainian tech companies including MacPaw.

With all of this hard work, it's no surprise that the book itself drew people to attend the event. "I heard about the book describing the history of Ukrainian IT, and this is a topic that I've been fascinated with for basically my whole life," said Artem Laptiev, a Ukrainian Course 6 senior at MIT. "I've always seen IT in Ukraine as very beautiful, because there are all these companies that started to create their offices built in the ruins of the old post-Soviet Industrial Offices, it's kind of like this picture of nature breaking through the old stones and regrowing."

Andrew Rouditchenko, a graduate student at MIT in computer science, agreed. "I think it would be good for people to be aware of some of these innovations that

officially released on February 11th, 2025.

Looking Forward: The MacPaw Foundation

Hosting the book event at the MIT Museum was a big step for the MacPaw Foundation, says MacPaw PR Specialist Emma Djordjevic. "Because MIT's vision and MacPaw's vision are very related, it really made sense for us to do it here. We also recently had two interns from MIT that interned with us over the summer. We had a wonderful experience, and they worked with our tech and R&D department," Djordjevic shared.

The event featured a raffle giveaway of items including a Commemorative Coin by the Army Aviation of the Ukrainian Armed Forces, a piece of metal from a Russian S-300 Missile complex shot down by the armed forces of Ukraine, an autographed copy of Innovation in Isolation, and a tennis ball signed by Elina Svitolina, Olympic bronze winning Ukrainian tennis player. Oleksandra Lytvnenko, who oversees MacPaw's philanthropic work through the MacPaw Foundation, stated that these items were given to MacPaw in thanks of their support of Ukraine. In particular, the MacPaw Foundation donates to provide Ukrainian civilians and servicepeople with nonlethal aid such as life-saving equipment, medical equipment, medical evacuation, blood refrigerators, and blood systems.

"I started the MacPaw foundation as my first project," Lytvnenko recalled. It was initially a private company venture, but when Putin launched his full-scale invasion, "the users of MacPaw products started to ask the company directly how they can support Ukraine. That's why the MacPaw Foundation became public and we started to receive donations, and we still are receiving donations coming from the users of MacPaw products who are buying our products and supporting Ukraine."

Lytvnenko's work, and MacPaw's work, is made possible by the people keeping Ukraine standing. "I live 100% in Ukraine, I live in Kyiv, I work in Kyiv, and I can live and work just because of the people who protect us," Lytvnenko shared.

If readers of The Tech are interested in helping Ukraine, Lytvnenko recommends raising money for the MacPaw Foundation through charity events or fundraisers. But even if you can't do that, "it's really important to speak up and tell that war in Ukraine is still ongoing and a lot of people are dying every day," Lytvnenko said.

For Laptiev, MacPaw's event served as both an inspiration and a reminder of all the work to be done. "It's just a great example of what all the people in Ukraine are doing right now," Laptiev said. "They are trying to continue interacting with the rest of the world, raising funds, but they never stopped working for Ukraine and trying to help us finish the war"

MOVIE REVIEW

Y2K, unlike its historic counterpart, is full of surprises, funny moments, and bloody endings

Kyle Mooney and Evan Winter discuss bringing their childhoods back to life on screen

By Lucy Cai

STAFF WRITER

Set on the last day of 1999, Y2K follows two characters, Eli (Jaeden Martell) and Danny (Julian Dennison), as they crash a New Year's Party. What starts as a familiar story of two outcasts trying to fit into a party of popular kids takes a surprising twist at midnight, when the Y2K bug makes computers and household machines spur to life. CD players behead high schoolers and Tamagotchis assemble themselves into killing machines as Eli, Danny, and Eli's crush Laura (Rachel Zegler) race to take down the computer network plotting to take over the world.

Y2K was Kyle Mooney's directorial debut, best known for *Brigsby Bear* (2017) and his nine seasons on *Saturday Night Live* from 2013 to 2022. Mooney co-wrote the screenplay with close friend and producer Evan Winter, who formerly produced mostly short-form content like music videos and commercials through his production company Arms Race.

The Tech had the chance to sit down with Mooney and Winter to talk about their motivations for creating this movie, bringing the '90s era to life on screen, and the process of collaborating with each other and with A24.

The idea for Y2K came to Mooney in the hangover of a fateful New Year's party five years ago. "I've always had a minor obsession with Y2K because it was just such a letdown," Mooney explained. "It was this thing that was promised to be a massive event, and then nothing happened. So I think, for those of us who lived through that, it's hard not to carry it on a little bit in the back of your mind." After sending a text to Winter, a close friend and collaborator since college, the idea quickly grew. "Within a week, we had most of the major ideas for the movie," Mooney said.

Over the course of the next year, they co-wrote the script in different cities. "Kyle was on SNL at the time," Winter stated, "so we would talk through stuff, outline. I would write some pages, send it over to him in New York. He would work on them, rewrite them, send them back... And we went through that rhythm for about a year. And by the end of it, it was not too far off from what the final script was."

Throughout their professional collaboration, Mooney and Winter enjoyed just having a friend by their side. "When you're alone, making all these decisions yourself," Winter said, "Even if you're confident, there's always gonna be moments you're second-guessing yourself. Just having another perspective of someone being able to think of something that you didn't, that can spark what the eventual

final idea will be."

"That also means you spend a ton of time with each other," Mooney added jokingly. "So, like, you know, I'm learning what he smells like."

In addition to directing, Kyle Mooney also plays an awkward, stoner video store employee Garret, who ventures with Eli and Danny to take down the evil computers but ultimately meets a brutal end. Similar to the gangster, confident-yet-awkward roles he's played in past SNL skits like "Inside Socal is Art Gangster" and "Kyle vs Kanye," this persona is one he's comfortable playing. It's also one that's accurate to the era, a popular stereotype that Winter frequently saw growing up in Oregon.

The cast features a mix of stars from both this generation and the previous one — computer-whiz, popular-girl Laura is played by Rachel Zegler, who won a Golden Globe Award for *West Side Story* (2021) and appears, more recently, in *The Hunger Games: The Ballad of Songbirds and Snakes* (2023). Jaeden Martell, who plays Eli, has previously acted in *It* (2017), *Arcadian* (2024), and the TV series *Defending Jacob* (2020). Fans of "STAY (with Justin Bieber)" will be pleased by a surprise appearance by singer The Kid Laroi as Soccer Chris, a mean athlete competing for Laura's New Year's kiss. For slightly older watchers, Alicia Silverstone from the '90s classic *Clueless* delights in her brief role as Eli's mother. Fred Durst, frontman of the nu metal band Limp Bizkit, plays a convincing character of himself.

For Mooney and Winter, one challenge of directing the film was convincingly portraying a bygone era on screen. "We went through old yearbooks of the era," Mooney described. "YouTube has a pretty good collection of '99, '00 video yearbooks too, so you can just scroll through some random high school's end of the year video and see all the styles." Another task was getting the film's actors, many of whom weren't alive during Y2K, into character. For that, Mooney said "We gave each actor their own character playlist to sort of feel the vibe. Lachlan who plays Ash got a nu metal rap rock mix, and Daniel who plays CJ got an underground hip hop mix."

Ultimately, Y2K, for Mooney and Winter, is the realization of a desire to see their childhoods on screen. "It felt like this era has not been fully represented on screen," Mooney admitted. Part of it, too, is a sense of cultural preservation: Winter described how when they were teenagers in the '90s, the '70s and '80s were the "cool, retro eras" that they didn't live through but whose fashion, music, and style still had a presence. "It's interesting how



PHOTO COURTESY OF A24

Y2K character poster of Laura (Rachel Zegler).

for that generation who didn't live through it, it gets distilled in a way... You guys have the fashion and you know the music, but there's a lot more stuff that hasn't quite filtered through."

Winter hopes watching the film will inspire the younger generation to learn more about "an artist or some sort of reference that slipped by them... and then learn more about the era."

Is there a deeper message beneath the roller blades and blood-thirsty blenders? Thoughtful watchers might read the film as a humorized warning for what's about to come with today's technology and Artificial Intelligence boom, that one day, ChatGPT could

plot to take us down in the same way that computers resembling bricks do in Y2K. Ultimately, though, the movie is more about evoking nostalgia for the past than trying to make a deep statement about the present.

Y2K has something fun for everyone. For those who grew up in the '90s, Y2K is a chance to relive childhood on the screen, to see Tamagotchis, MTV, and AOL, which have all but disappeared in today's culture. For those of us still crashing New Year's parties and pining after our crushes, it's a chance to briefly live in a cooler era, one that has inspired more of today's culture than we think.

DANCE REVIEW

The Martha Graham Dance Company captivates in return to Boston

By Angelica Zhu

Martha Graham Dance Company

Contemporary Dance Showcase

Celebrity Series of Boston

Nov. 23, 2024

Emerson Cutler Majestic Theatre

After nearly two decades, the Martha Graham Dance Company returned to Boston and presented four pieces that represented the company over the past century. Opening with the original Graham work *Dark Meadow Suite*, the show moved to the humorous *Rodeo* by Graham's close friend Agnes de Mille, followed by the iconic 1930 *Lamentation* and *We the People*, which newly premiered in Febru-

ary of this year. Created in 2016, the *Dark Meadow Suite* featured the highlights of Graham's 1946 *Dark Meadow* and underlined Graham's incorporation of ritualistic elements in her work, inspired by the rituals of the natives of the American Southwest and Mexico that she observed in her youth. Five dancers in a V-formation began the dance in a stage silent alongside the sounds of their own stomps as a lone woman, removed from the group, gazed upwards quietly and basked under a warm orange light.

Every movement in *Dark Meadow Suite* felt deliberate and purposeful, drawing from the rhythms and gestures of rituals. The dancers used cupped hands, flexed feet, and small, springing hops, creating a sense of connection and interdependence with each other, yet the choreography maintained a measured control that set it apart from the unrestrained energy of real-life rituals. This was ritual transformed for the stage — refined but no less evocative. The sparse music, a simple melody of violin and cello, was accented by the stomps of the dancers. As the tempo quickened, male dancers entered the stage and formed four duets with the women, occasionally shifting their weight as if they were dolls.

The tone shifted dramatically with *Rodeo*, a lighthearted celebration of 20th-century Amer-

icana. As one of the first large-scale stage performances to draw inspiration from folk dance traditions, such as tap and dances brought by immigrants, it broke new ground in modern dance. Movements such as barrel turns and lasso motions were incorporated in the more graceful manner of the modern dance style. The stage was bare of props, but the dancers' colorful costumes, complete with cowboy hats and workwear-inspired designs, vividly evoked the spirit of rural America. At its heart, the piece told the story of a cowgirl navigating the challenges of individuality and femininity. Initially set apart for defying social norms, she embarked on a journey of self-discovery, ultimately finding love without sacrificing her authenticity.

The mood turned somber with *Lamentation*, a brief yet deeply moving dance that portrayed grief in a physical form. Lasting less than four minutes, the piece featured a single dancer seated almost completely shrouded under purple fabric, with only their face, hands, and feet exposed. The fabric emphasized their tension as their hands gripped and pressed inward, conveying a desperate internal struggle. Alone in the spotlight, the dancer swayed, stretched, and twisted within the confines of the fabric. Even the piano reflected this anguish, sometimes pausing between notes as if

searching for a correct key.

The evening concluded with *We the People*, a vibrant and distinctly contemporary piece which brought the program into the 21st century that premiered February of this year. The choreography was layered and dynamic, often featuring different movements happening simultaneously, yet harmonizing seamlessly across the stage. This gave the dance an almost musical-theater quality, which was reinforced by the costumes. The energetic group dances alternated with quieter solo interludes. During the solos, the stage fell silent, save for the sounds produced by the dance's own movements. *We the People* was a celebration of individuality within the community, and how protest and lament still exist underneath the guise of the American Dream.

Spanning nearly a century of innovation, the program highlighted the company's profound ability to blend tradition with change. This performance not only honored Martha Graham's legacy but also underscored the enduring relevance of her vision. From the controlled precision of *Dark Meadow Suite*, the lighthearted storytelling of *Rodeo*, the visceral emotion of *Lamentation*, and the vibrant complexity of *We the People*, the evening proved that modern dance continues to evolve while staying deeply rooted in its history.

In Conversation with Dr. Henry Cohn: Three Perspectives on the Fourier Series

They seem to pop up everywhere in math and science...

By Elizabeth Li & Veronika Moroz

Whether you are an 18.03 student or a math enthusiast, chances are you have heard about the Fourier series. Though a vital tool in math, physics, and beyond, it remains a topic that eludes intuition, even for those who have studied it in class. The Tech sat down with Professor Henry Cohn, who taught Differential Equations (18.03) in the fall of 2024, to offer three perspectives on the Fourier Series. Regardless of who you are or what you study, this is a glimpse into the beauty and power of this tool.

For the General Audience

Starting with the most fundamental intuition—the level of math without math—the Fourier Series may be best understood through music. On a piano, for instance, it would be dull to play only single notes one at a time. Instead, chords can produce more harmonious sounds. Professor Cohn recommended thinking about the Fourier series in the context of sound waves, where “you can have very complex sounds and you can break them apart into combinations of much simpler frequencies.” This process is analogous to the piano, which, in a sense, discretizes musical pieces into pure tones; the set of only 88 keys is a far simpler set of sounds compared to a piece like “La Campanella.” The Fourier Series is the sum of many different simple sine waves, which are periodic, into a more complicated periodic function, which involves the repetition of the same motif.

However, is it possible to represent non-repeating sounds like human speech? As it turns out, the Fourier Series continues to be useful: as Cohn recommended, “You can take a snippet of the conversation,” and play on a loop to make it periodic, which is “really equivalent to doing the Fourier series, where you repeat the

snippet over and over.” Alternatively, the Fourier series can be generalized into one infinitely long, aperiodic motif through a deeper topic called Fourier Transforms. They are still modeled using sines and cosines, but now, they are stretched to infinity in both directions so that there are no repetitions. Science Youtuber and former NASA engineer Mark Rober delivered a fascinating example by synthesizing speech with different combinations of notes on a piano.

For the Pragmatist

You may wonder why it is useful at all to decompose a function into simpler parts when we can just have the function itself. On a mathematical level, Fourier series are often easier to manipulate than complicated functions: they are either written as sums of complex exponentials or trigonometric functions, which are straightforward to integrate or derive. On the application level, the methods of the Fourier series are used in the real world on tasks such as breaking down complex waves in audio processing and analyzing molecules through X-ray diffraction.

Another surprising application is solving the heat equation, which was in fact the initial problem that gave rise to the Fourier Series that French mathematician Joseph Fourier faced in 1822. The heat equation models heat distribution across a metal rod with both ends submerged in ice. “It doesn’t look like it has anything to do with representing periodic functions out of pure sine waves. And so the fact that this turns out to be exactly the mathematics underlying this is kind of a miracle,” Cohn said.

To get a sense of why this works, consider $\theta(x, t)$, a function that models the temperature θ of a piece of the metal rod at position, x , and time, t . The change in heat flux along the position on the rod is

proportional to the rate of cooling with respect to time by a constant factor. Or, in symbols, $\frac{\partial \theta}{\partial t} \propto \frac{\partial^2 \theta}{\partial x^2}$. Fourier’s solution, which involves doing separation of variables by setting $\theta(x, t) = v(x)w(t)$, leads to this Fourier series:

$$\sum_{n=1}^{\infty} b_n e^{(-n^2 t)} \sin(nx)$$

for boundary conditions $\theta(0, t) = \theta(\pi, t) = 0$.

In case you’re wondering where the n^2 term in the exponential comes from, one explanation is that this equation connects to the number theoretic problem of “generating functions that tell you things like how many ways there are to write an integer as a sum of a certain number of squares.” Both the heat equation and the formula for generating functions that are sums of squares come from the common theta (θ) function, which is why theta notation is being used here.

The math behind the heat equation and breaking up whole numbers into sums of squares converges at a bigger mathematical topic called theta functions, which heavily involve the Fourier series: these infinite sums of sines and cosines are truly a stepping stone to higher realms of STEM.

For the Math Theorist

The wonders of the Fourier Series are not limited to its applications. As Dr. Cohn stated, “Everything is connected behind the scenes.” In fact, the Fourier series studied for their real-world applications are often also some of the most interesting to pure mathematicians.

From a mathematical perspective, we may naturally wonder what the space of possible manipulations may be after decomposing these functions, and why some functions are designated as “simple” functions. This is a specialized field of study called representation theory. Returning to the example of audio, one of the easiest

ways to process it is to shift its entirety in time. Cohn added, “Here you can think of this as having a group acting on it, where the group is just one-dimensional. It’s just the addition of real numbers or one-dimensional vectors, which is a sort of fundamental signal processing tool.”

Further, the behavior of such groups can be studied through an algebraic lens by finding the characteristic functions of the transformation that remain, in some sense, invariant, which are called eigenfunctions. More concretely, we ask when a function has the property that shifting it over in time is equivalent to multiplying it by a scalar. “The exponential functions are exactly the eigenfunctions for this,” Cohn explained, “but real exponentials blow up in one direction or another, so they’re not really useful for building well-behaved signals. But the complex exponentials never get bigger or smaller; they always stay the same absolute value.” The one-dimensional Fourier transform uses these complex eigenfunctions to build almost any signal.

Of course, there are functions with more variables, and transformation groups more complicated than time shifts. Cohn offered a function with three spatial variables, which similarly works with complex exponential eigenfunctions instead of using the three-dimensional Fourier transform. There are also “weirder” transformations such as modular forms, discrete transformations of data sets symmetric under permutation groups, and more. The big picture of representation theory, Cohn summarized, is to understand the type of problem by figuring out what the underlying group of symmetries is, then analyzing it and finding its representations to characterize the original problem.

“In exciting cases, you’ll end up near the research frontier,” he said.

That is incorrect.

Blair took the lead by 14 points. In order to tie and continue the tournament, Mission San Jose needed to answer both of their next questions correctly. If not, it was game over.

The audience, comprising teammates, families, and other participants, watched quietly as the moderator read the final question to Mission San Jose:

Chemistry Short Answer Question: When buckminsterfullerene is singly ionized, the icosahedral symmetry of the caged structure is broken. What effect is responsible for this electronic distortion?

Answer: Jahn-Teller
That is correct.

Mission San Jose needed one more correct answer to stay in the tournament.

Bonus Chemistry Multiple Choice: Which of the following best explains the source of the vibrant color produced when starch is added to a solution of iodine?

W) Iodine accepts electrons from starch into a sigma star orbital
X) Iodine accepts electrons from starch into a pi star orbital
Y) Starch accepts electrons from iodine into a sigma star orbital
Z) Starch accepts electrons from iodine into a pi star orbital
Answer: W) Iodine accepts electrons from starch into a sigma star orbital

Faces everywhere: Pareidolia in machine learning

A new machine learning model and dataset reveal insights about how and why we hallucinate faces in inanimate objects—and give computers a more human way of seeing the world.

By Jieruei Chang

Look at an electrical outlet, and you can almost see a little shocked face: two slits for eyes, and a ground-socket mouth. This is an instance of pareidolia, in which we see faces in everyday objects. It’s a phenomenon that’s been examined in countless studies: magnetoencephalography shows that pareidolic images activate the fusiform face area, a part of the brain responsible for facial recognition. Electroencephalogram measurements show that brain waves are generated earlier in the prefrontal cortex when the brain detects a face compared to when it doesn’t. From birth, pareidolia is hardwired into our visual perception.

Yet its core mechanism remains largely unexplained. How, and why, did we evolve to see faces everywhere? A new study from the MIT Computer Science & Artificial Intelligence Laboratory (CSAIL) presented at the European Conference on Computer Vision (ECCV) in October tries to answer that question by training a machine learning model to see faces in things too. “What this paper really tries to do is explore the intersection between pareidolia and computer vision,” says Mark Hamilton, MIT PhD student in electrical engineering and computer science and the lead researcher on the work.

To test how well computers could see these illusory faces, Hamilton and his team built the world’s first large-scale pareidolia dataset. Filtering from a set of 5.85 billion images, the researchers—plus Hamilton’s mother—put together 5,000 pictures of pareidolic faces.

“The hope is that this kind of data set can be used to test psychological things in silico,” or using computer models, says Hamilton. Researchers think these models offer a way to test hypotheses about human cognition without the ethical and logistical constraints of traditional experiments, “like how people create fancy rat models for testing new drugs.”

In one experiment, the researchers quizzed a state-of-the-art face detector on the pareidolia dataset. It had a hard time until they gave it some extra training data with animal faces. And that might reveal something about why our brains evolved to exhibit pareidolia. “Previously people might have thought pareidolia was because of emotion detection, but this result seems to say that maybe it’s so that we don’t get eaten by a tiger,” says Hamilton. In environments where survival depended on recognizing hidden dangers, the ability to perceive face-like patterns—even in ambiguous situations—might have provided a crucial edge.

This highlights one advantage of using a computer model to explore questions in cognition: researchers can manipulate variables in ways that would be impossible with real humans. “You could never test a human being who’s never seen an animal,” says Hamilton. But with a machine learning system, all you have to do is remove the animals from its training dataset.

In another experiment, the researchers intentionally used very simple machine learning systems, such as Gaussian models that represent data with a series of simple probability distributions, to represent pareidolic faces, showing that they tend to match the low-frequency features of faces—the overall structure or contours—while ignoring high-frequency details like textures. Modern neural networks are often black boxes too complicated to analyze, but it’s easy to visualize a simple model and understand what’s going on under the hood. “You can write down a closed form equation, graph it out, and ask questions about how it behaves,” says Hamilton.

But how well do the machine learning models match up with reality? Greg Borenstein, a graduate of the Playful Systems Group at the MIT Media Lab who was not involved in the study, cautions against drawing direct parallels between machines and humans. “The thing that a human being sees as a face is very different,” he said in an interview with Science, from what face-detection algorithms might look for; a convolutional neural network detects very specific patterns of pixels rather than the concept of two eyes and a mouth. Algorithms don’t exhibit pareidolia because of evolutionary pressures, but because of the way they’re trained, he says, and every algorithm will express pareidolia differently.

There are, however, indications that the computers match human perception in some aspects. Hamilton’s team showed pictures of random noise at different levels of detail to human subjects, and asked them to count how many faces they saw. At low detail, people see few faces, because they look too blurry. At high detail, people see few faces, because high-resolution faces rarely occur randomly. The “pareidolic peak,” where people see the most faces, is somewhere in the middle. When given the same experiment, the computers exhibited the same kind of peak.

And what about uses beyond psychological experiments? The most direct application is for fine-tuning facial detectors, either to reduce false positives, or to make them more generalized (to see cartoon faces, for example).

Another possible application is to give computers an understanding of friendliness that could be used in generative design. For example, if a computer is helping to design, say, a dental scanner used on children, it needs to look approachable so that children aren’t terrified of having it shoved into their mouths. “You don’t want to make this accidentally menacing,” says Hamilton. One co-author, from Toyota Research, was interested in whether cars could be made to look more or less intimidating based on their perceived pareidolic emotion.

By creating a connection between computer vision and pareidolia, this research could both help advance cognitive science and help teach machines to see the world like us—soon, your computer might be able to detect that shocked electrical-outlet face too.

Play Seriously: The teaching that defines MIT’s iconic 2.009

An interview with Professor David Wallace, the visionary behind one of MIT’s most celebrated classes.

By Hailey Pan & Eric Wang

What does it mean to “play seriously?” For Professor David Wallace, it’s about finding joy and meaning in challenges while approaching them with care and a sense of play. In his new video series, Play Seriously, Wallace shares his teaching philosophies from leading one of MIT’s most celebrated classes, 2.009, or Product Engineering Processes.

The course itself

Compared to a modern product development firm, 2.009 is as real of an engineering experience as it gets. Students work in large teams of 15 to 20 people to design, build, and present alpha versions of novel products inspired by a broad annual theme. This year, students developed a range of innovative prototypes surrounding the theme “Balance,” from a firefighter respirator for protection against airborne particles, to a knee rehabilitation wearable, to an underwater communication device for beginner scuba divers.

The course culminates in a live presentation attended by over a thousand practicing product designers, entrepreneurs, academics, and classmates—not to mention a live webcast audience in the tens-of-thousands.

Behind the spectacular show and impressive builds lies a teaching philosophy honed over 30 years by Wallace.

Play Seriously: the philosophy of 2.009

Though rooted in the experience of 2.009, this philosophy now reaches a broader audience through Play Seriously, a 7-part video collection where Wallace unpacks the ideas that have shaped his teaching and inspired countless students. Each episode—narrated by Wallace—focuses on a different principle that has defined his approach to teaching and is accompanied by behind-the-scenes stories.

In Episode 1, “Everything is an Example,” Wallace emphasizes the power of details in teaching. He connects this principle to the elements the staff integrates into the 2.009 build challenge. From a massive tree rigged with pyrotechnics to custom chocolate coins, every detail immerses students in an memorable experience, driving home the message that “if you put enough attention to detail and care into your designs, you are going to make something that people can’t ignore. Something truly memorable.”

The video series was first envisioned in 2019, when MIT department heads Professors Evelyn Wong and Rohit Karnick encouraged Wallace to share the philosophy behind 2.009.

“People would see the results of the class, but they didn’t always understand what it was really about,” Wallace explains. After pandemic-related delays, Wallace and his team filmed Play Seriously during the fall 2023 class and developed it over the following year.

While Play Seriously was born only five years ago, the philosophy behind it has been decades in the making. Around 2005, Wallace experienced an “aha moment” when he realized there was a disconnect between himself and his students.

“People were afraid to talk to me, like there was this barrier,” he recalls. “And I thought, if you want to help people learn, the first thing is trust.” Creating an environment where his students felt comfortable to admit they were facing roadblocks was key. “That’s when I realized I needed to do something differently.”

Around the same time, Wallace noticed another issue: topics he found fascinating didn’t seem to spark the same interest in his students. The realization pushed him to rethink how to truly engage students. “It all came together for me—this idea that creating a positive, playful environment could make a huge difference,” he explains. “In some sense, it’s about me having fun too, but it’s really been about connecting in a way that motivates students.”

And that connection paid off. Through his efforts to connect with his students in this playful way, Wallace’s students discovered a newfound confidence in their work. He sees many students come into the class with doubt, worry, and anxiety “because you don’t know if you can do it, or what it is you’re even going to do.” In a better environment, this confidence brings a new level of care and passion in one’s work. Wallace noted his students “treating everything a little bit with respect and finding” as they would when compared to the beginning of the class. “The reward is watching what the students do.”

One night, when Wallace was heading out of campus, Wallace overheard a group of students he was walking behind. “I remember one student saying, ‘I can’t believe it. I’ve totally forgot this is even being graded,’” he recalled.

“They’re in there, they’re working, and they’re working because they want to do something,” Wallace’s students were starting to “own their own trajectory” of their lives. It’s this intrinsic motivation that Wallace hopes his students will find both in and out of his classroom.

Teaching for tomorrow

Professor Wallace’s lessons aren’t only for the next generation of product developers—they’re for the next generation of hungry engineers, scientists, innovators, and leaders. In Play Seriously, Professor Wallace continues to be inspired by his late mentor Professor Woodie Flowers, who gave him the advice to “play the movie in your head,” or to imagine the process before starting it. Now, decades into his own teaching career, Wallace sends his own message to the next generation of leaders:

“Treat things like they matter, and then you’ll know how to do things so that they matter.”

By Sophia Zhang & Hailey Pan

On Saturday, Nov. 16, 26-100 brimmed with energy as high school participants, teachers, guardians, and MIT student volunteers gathered for the annual MIT Science Bowl Invitational. Hailing from across the United States, 48 teams, including those from as far as California and Washington, filled the rows of the auditorium, ready to compete.

MIT Science Bowl, a student-led organization, began hosting competitions in 2016, striving to foster teamwork and students’ passion for science. The first competition they hosted was the Northeast Regional Middle School Science Bowl. Held on MIT’s campus, it invited middle school teams to compete for a chance to advance to the national tournament in Washington, D.C. In 2019, the organization expanded to host its first High School Invitational, featuring twelve teams.

This year, MIT Science Bowl hosted teams from 44 different schools across 15 states. The competition began with five rounds of Round Robin, followed by five rounds of Wildcard Tournament, and concluded with nine elimination rounds. The questions for the tournaments are created by MIT student volunteers, each round testing students’ knowledge in chemistry, biology, physics, mathematics, and earth and space science. MIT Science Bowl added an Energy category that

touches on MIT-based research, such as research in CSAIL and the Koch Institute.

MIT Science Bowl organizes the events “from scratch,” co-president Jonathan Huang stated. “You write the questions, you plan it all out, you order the food, you reserve all the rooms.” And the day of, he shared, “it’s a really nice experience seeing everything come together.”

The Invitational is entirely volunteer-run; “100 volunteers show up in the morning of the competition. They are reading the questions, timekeeping, and scorekeeping in perfect synchrony, in 24 different rooms. It’s just wonderful.”

They coordinated with Lori Tsuruda, founder and executive director of People Making a Difference (PMD). PMD sent 20 to 30 volunteers to help out with this competition. Alborz Bejnood, MIT Science Bowl’s advisor, also helps to organize the event.

After 5 rounds of Round Robin and Wildcard, the final double-elimination round kicked off at 5:00 p.m. Eight students—four from Montgomery Blair High School in Silver Spring, Maryland, and four from Mission San Jose High School in Fremont, California—sat tensely with their hands hovering over buzzers. The two teams faced each other across the auditorium stage, separated only by a large scoreboard, three MIT student volunteers, and their opposing determination to win.

By the last question, Montgomery

```
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"
```

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The MIT 2.009 Prototype Launch (Balance) ends with confetti in Kresge Auditorium on Monday, December 10.

VIVIAN HIR - THE TECH



Montgomery Blair High School & Mission San Jose High School students compete in the final elimination round.

PHOTO COURTESY OF TITUS TSAI



UA Education hosts a formal banquet for students and professors in Lobby 13, Wednesday, December 4, 2024.

OMAR OROZCO - THE TECH

Half Baked

by Manaal Mohammed '25

Solution, page 7

Across

01 Separate checks

08 Pawns on a chessboard, say

13 More bogged

15 Follicular or luteal, perhaps

16 Guam natives

18 Seasons

19 November 1 experience, perhaps

21 Let go

22 "Emotion" artist Carly ____ Jepsen

23 Ornamented tobacco case

25 Base of a number system

28 "Surprise!"

29 Thor's father

30 Sudoku entries, briefly

31 Pea nut?

36 "No problem!"

38 Menorahs and dreidels, e.g.

39 Oscillate, say

40 Untrustworthy, slangily

41 Draft

42 Sound investment?

44 Zellweger of "Bridget Jones' Diary"

45 54-down in Somerville, for one

49 Fire engines, notably

50 Pizazz

51 Historical foreign exchange program?

56 ____ Fisher ("Eighth Grade" actress)

58 Worked up

59 Cry of innocence

60 Advil, perhaps

61 T-bone, for one

62 Takes no action against

Down

01 Sonoma and Acadia

02 Luigi Mangione home, once

03 ____ race

04 Amphibious armed forces

05 Chest

06 Popular Madeline Miller book

07 Frau's partner

08 "Call of Duty: Black ____"

09 Refuse

10 Aqib ____ (former NFL player)

11 Aero-____

12 Neuter

14 Some chestnut preparations

17 Tax 30-across

20 Arab dip

24 RSS, for one

25 Noted flag sewer

26 Together, musically

27 ____ straits

28 F, perhaps

30 Rulers of South Asian states, historically

32 Casually mentions someone so as to impress

33 "In and Out of the Shadows" singer

34 "____ homo"

35 Michigan, for one

37 Low islands

38 Stick (out)

40 Plpsqueak

43 Cod or Verde

44 Shade again

45 Many new drivers

1	2	3	4	5	6	7		8	9	10	11	12
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45	46	47	48						49			
50						51			52		53	54
55												
56						57			58			
59										60		
61											62	

46 Portion ____

47 Speed ____

48 Feminine side, according to Jung

49 Fasten once more

52 Undesirable stocking

stuffer

53 Indigo source

54 "The Great Masturbator" artist

55 Vogue competitor

57 "A mouse!"

FROM THE PUBLISHER

— ELLIE MONTEMAYOR

NOTICE: OPINION SECTION TEMPORARILY SUSPENDED UNTIL FURTHER NOTICE

The Tech Editorial Board has identified critical flaws in the standard operating procedures of our Opinion section that we feel must be corrected before we continue to publish articles from this section. We at The Tech adhere to the highest journalistic standards, and we see it as a serious disservice to the Institute community to continue operating this section without having addressed these issues.

As a result, all current unpublished opinion submissions shall be withheld from publication, and we will cease acceptance of any further submissions, until further notice.

During this interim period, The Tech Editorial Board will focus its efforts on revising its departmental policies and operating guidelines. This temporary suspension is expected to be lifted upon the completion of this process.

NOTICE: RETRACTION OF OPINION PIECE

CONCERNING “DANIELA RUS, THE PEOPLE DEMAND: NO MORE RESEARCH FOR GENOCIDE” (NOV. 7, 2024)

After careful deliberation amongst the Executive Committee and our faculty advisors, we have decided to pull this article, which was signed by the MIT Coalition for Palestine (C4P), from publication. This article is being retracted in full. Our decision was made in light of increasing hostile rhetoric and action against Professor Daniela Rus and her laboratory.

This retraction was made after The Tech Editorial Board identified major factual inaccuracies in the piece, and was done in consultation with our faculty advisors and the subject of the piece, CSAIL Director Daniela Rus.

Listed below are corrections to the factual errors in the piece, identified with the direction of Professor Rus:

- The grant that supports Professor Rus’ research is funded by the U.S. government; the grant is intended to support research conducted in partnership with

U.S. allies. The research work is done in collaboration with the University of Haifa, under a contracting partnership between the U.S. government and the Israeli Military of Defense.

- The work conducted under the grant research is basic science on the mathematics of compressing data using coresets, and is not deployable for use in drones with the applications claimed by the C4P.
- An unrelated project under Professor Rus’s laboratory, which is funded by separate sponsors, is primarily used for field deployments to monitor whales for sustainability research.

The Tech was not involved in any action or rhetoric that may have taken place against Professor Rus and her laboratory. We sincerely apologize to Professor Rus and the CSAIL community for any harm done following the publication of this piece.

UA releases inaugural participatory budgeting results
\$25,000 will be allocated to five proposals: an equal amount will be set aside for proposals in the spring

By Sabine Chu & Alex Tang

On Nov. 25, the MIT Undergraduate Association (UA) released the winning proposals of its inaugural participatory budgeting process. The proposals were selected through a ranked choice vote open to all undergraduates. In alphabetical order, the winners were: Free Menstrual Products, Free Stamps for All, Project G.O.A.T., aka Goat Petting Zoo, Undergraduate Swings, and Waffle Wednesdays.

The participatory budgeting vote marks the first time in which the undergraduate community has had direct input in how the UA allocates its assets for spending. UA President Enoch Ellis ’26 emphasized the novelty of organizing such a vote. “A lot of this process we had to make as we went,” Ellis wrote in a statement to The Tech.

The screening for the proposals was no exception. The UA Council initially created a detailed rubric to evaluate every project on qualities including “relevance to [MIT’s] community, alignment with In-

stitute values, and innovation.” However, the council eventually rejected plans that were outright illegal, not administratively workable, or fundable by other club financing mechanisms that the UA already has in place.

In his statement to The Tech, Ellis stated few proposals fell into the first two categories. He also emphasized “copious resources,” for clubs, including the Large Event Fund, Financial Board, and Association of Student Activities. “PB [participatory budgeting] does not affect other sources of extracurricular funding that student groups get,” he wrote.

Following screening, the UA released all remaining plans and descriptions to the general student body. After winning the most ranked-choice votes from the student body and gaining the Council’s approval, five projects were granted a cumulative \$25,000. Per the UA, funds come from unspent portions of “previous years’ budgets.” Four other initiatives, ranging from a bouncy house to dorm-wide newspaper stands and media subscriptions,

were also on the ballot but did not gain enough ranked-choice votes for funding.

Some winning proposals were grounded in necessities, such as the Free Menstrual Products and Stamps For All proposals, while others were more light-hearted. In an email to The Tech, Jensen Coonradt ’28 described their proposal, Project GOAT, as an “initiative to bring friendly goats to campus for monthly visits to improve mental health and well-being.” Coonradt hopes that “whimsical elements like a goat-friendly slide and tiny MIT-themed shirts” will “create moments of happiness, strengthen connections across campus, and promote a balanced, supportive campus culture.”

The Council plans to work with the larger UA, volunteers, and those who initially proposed projects on their implementation. Updates will be available on their website. Ellis hopes this process will be visible, sharing, “We want feedback. We want help—if it looks like there’s not many people working on this, that’s because that’s the case.” As a proposer,

Coonradt feels that the UA has been supportive and clear. They have arranged for a goat vendor, car rentals, and music from MIT’s CelloWorld(); club.

Ellis noted that more people will work on the participatory budgeting plans next semester. This help is likely more than welcome: according to their website, the UA plans to run another full round of PB this spring, with another \$25,000 up for grabs. This new round may see some repeat proposals. Ellis encouraged students unhappy with the results to “engage... directly—whether by sharing your concerns or advocating for the proposals you support in the spring.” More broadly, he emphasized, “Democracy thrives when everyone participates!”

Although none of the projects have yet come to fruition, they are already creating some talk on campus. Coonradt concluded his email, “I’ve found it hilarious and heartwarming that some students have started calling me “The GOAT” because of this project—it’s a fun reminder of how much excitement it’s already generating.”



KATE LU - THE TECH

The 2024 MIT Glass Lab Holiday Sale in Lobby 10 features glass work made by students and instructors in the Glass Lab, Monday, December 9th.