





# Decades of insights and inventions

## ► MUSEUM

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quite intimidating. People, I think, have this image of all these very smart people doing obscure things. We're trying to be the opposite of that. We want people to feel that this is their museum."

With an estimated 1.5 million objects in its collection, the MIT Museum is a rare hybrid in the museum world. Neither science center nor art museum, it inhabits a space in between, where the historical objects of scientific discovery — the early social robot "Kismet," say — coexist with an art project that considers the consequences of genetically engineering the estimated 60 billion chickens we consume annually: If they were turned bright pink, would it create a roseate layer in the geologic record?

"We've always been interested in the arts and in their dialogue with science," said Durant. "I often say we have one foot in MIT's past and one foot in the future."

MIT Provost Cynthia Barnhart said the 56,000-square-foot museum, which sprawls across three floors of the larger Gambrill Center opposite the Kendall/MIT MBTA stop, completes a "trio of spaces" in the campus's gateway, including a new welcome center and community green space.

"[T]he Museum showcases MIT's historical contributions to science and technology and makes the Institute's art and artifacts accessible to the world," she said in a statement.

To that end, the new museum's ground floor, which is free to enter, is dominated by a large staircase for students and the public to gather for talks, events, or just a cup of coffee.

The lobby adjoins an expanded museum store and will feature a series of temporary art installations, the first of which is "A Counting" by Ekene Jeoma, which invites visitors to record themselves counting to 100 in their native language.

Climbing the grand staircase, Durant described how the museum's new facility isn't much larger than the old radio factory it used to call home on Massachusetts Avenue. The difference is that the new space, designed by Höweler + Yoon Architecture, is built specifically to display objects from the museum's collection, everything from early prosthetic limbs to deep space in-

struments, as well as host traveling exhibitions and events.

"Everything is a complete upgrade," said Durant, who has led the museum since 2005. He described how the old building had scant gallery space, suffered leaks, and "wasn't really well-suited to being a museum." "My feeling when I first came was that MIT deserves a better museum than we could make in the place we had. I've been working towards this all the time I've been here."

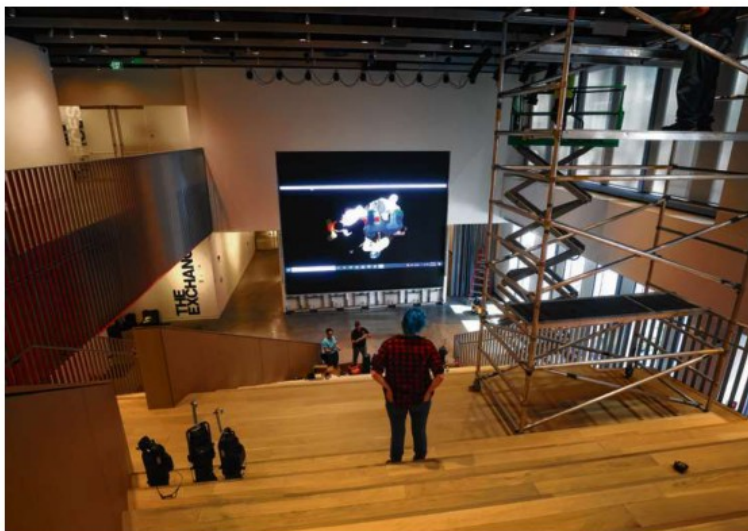
The first gallery on the second floor provides an overview of some of MIT's greatest hits, including the prototype of a device to detect the infinitesimal gravitational waves predicted by Einstein's theory of relativity, an instrument like those aboard the Voyager spacecraft, and something called LiquiGlide, which keeps ketchup and other sticky substances from clinging to the sides of a bottle.

Groundbreaking projects are front and center, but the exhibition also emphasizes the role culture plays in the university's research. Sound pods enable visitors to hear the reflections of scientists. Museum-goers can create a personal profile by entering information that is uploaded to an expansive video wall, their whimsical avatar set loose within an animated representation of the MIT community.

"Science is embedded in culture, and that is incredibly important to technology decisions," said galleries and exhibitions director Ann Neumann. "Who should be part of those conversations? It has to be artists, it has to be the larger community, and that needs to inform the work of the scientist."

The inaugural show in an adjoining gallery for temporary exhibitions, "Gene Cultures," explores the ethical and cultural implications of biotechnology and gene-editing. The exhibit presents scientific artifacts — a section of an early gene sequencing machine, for instance — alongside speculative artworks such as Richard Pull's "Mermaid De-Extension Project" (2022), which invokes genomics and includes a monstrous taxidermied "mermaid" that looks like it was plucked from the deepest sea.

In addition to "The Exchange," another staircase gathering area for programs and events, the second floor has a maker hub replete with 3-D



PHOTOS BY DAVID L. RYAN/GLOBE STAFF

The 56,000-square-foot museum includes room for gatherings and events, as well as displays and a maker hub.



A textile art installation made from T-shirts at the museum.

printers, sewing machines, and a laser cutter. There is also a pair of learning labs that will be available to groups and on a drop-in basis, where attendees can perform guided hands-on experiments.

"We're talking extracting DNA from strawberries," said Durant, who added that the labs and maker hub are free with admission. "We wanted to give our visitors a chance to actually do stuff."

Third-floor galleries include an exhibition of kinetic sculptures by Arthur Ganson and Andy Cavatorta. The show features several well-known works by Ganson, including "Beholding the Big Bang," a series of gears that reduces its speed to where the final gear, its spindle embedded in a block of cement, will take 13.7 billion years to complete a single revolution — the estimated age of the universe.

Cavatorta's work "Whale" is similarly critical proof: a large-scale kinetic sculpture that performs a piece of music set to unfold over the course of two centuries, or roughly the lifespan of a bowhead whale.

Cavatorta, who was recently fine tuning "Whale" in the gallery, said he composed the work using an artificial intelligence method known as a neural network, "some machine learning based on songs of humpback whales and bowhead whales, and a little bit of [the medieval composer] Hildegard von Bingen."

"Is it any good?" he asked. "Well, I won't really ever be able to fully hear it."

A nearby gallery explores artificial intelligence, including a chance to make a "sandwich" with a workplace robot and an opportunity to write an AI-assisted poem. A section devoted to deep fakes, or video forgeries,

includes the eerie "In Event of Moon Disaster," which simulates President Nixon giving the contingency speech he'd had prepared (but never actually delivered) in case the Apollo 11 mission ended in disaster.

The final gallery includes a photo exhibition from MIT's Creative Photography Laboratory as well as "MIT Collects," a veritable cabinet of wonders from the museum's collection.

Presented in lighted vitrines mounted on the back wall and standalone displays, the objects include everything from a model of a wheelchair that can climb steps to a mouse maze curators believe is one of the earliest examples of machine learning.

One display details the role of play in science and technology. Another shows some of the more famous student pranks over the years, including the infamous 1982 balloon hack of the Harvard-Yale football game, and the Smoot, a unit of measurement for the Massachusetts Avenue Bridge based on the height of a diminutive MIT alumnus named Oliver Smoot.

There's also a display devoted to the school's complicated racial past that includes an oral history of Black students, faculty, and others associated with the university. Pointedly, the display includes a bust of MIT's influential third president, Francis Walker, who became the school's leader in 1881. A Civil War veteran, Walker had previously served briefly as commissioner of Indian affairs, later writing a book

that advocated the separation of Native American tribes that resisted assimilation, concentrating them on reservations.

"There's just no escaping that the man was a flagrant racist," said the museum's director of collections Deborah Douglas, who added that Walker's bust has been in the museum's collection for about a quarter century. She described how she worked with students to help contextualize the sculpture. "Some were very nervous and didn't want him anywhere. Some were like, 'Oh, you should bang him with a hammer.' And some were like: 'No, no, you should display him, but take him off the pedestal.' That became the consensus."

The museum will be free for Cambridge residents, who were able to get an early look at the new space on Saturday. The museum's opening also coincides with this year's Cambridge Science Festival (Oct. 3-9), and composer Tod Machover will present three world premieres later in the month to mark the museum's opening.

"I see this as a kind of statement of good faith by the Institute to the community," said Durant, who described the new museum as a "meeting ground."

"We want this to be a place where people can come and learn about what we're doing," he added, "but also ask questions or challenge us, to have a dialogue."

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# A ride out of the comfort zone brings apprehension — and joy

## ► LEUNG

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routinely. Could I manage even one trip? Between fear and inertia, I had never put foot to pedal for a commute.

My desire grew as I watched people zip around Boston on Bluebikes, bypassing pedestrians and stalled traffic. But there's always been a caveat. Boston may have gotten more bike-friendly, but there's a long way to go. The street layout makes no sense, designated lanes are inconsistent, drivers are impatient, and nobody (cyclists and pedestrians included) follows the rules of the road.

But when Mayor Michelle Wu urged people to seek alternative ways to get into the city during the Orange Line shutdown, a moment of personal reckoning arrived. It was time to give two wheels a whirl.

The night before my 8.5-mile ride downtown, I was so anxious I couldn't sleep. Many of us know somebody, or a friend of friend, who has been killed or seriously injured in a bike accident.

That's why I wasn't going it alone. Mullan practices safety first. Maybe that's because he's a partner at Foley Hoag, a big law firm, and served as state transportation secretary during Deval Patrick's first term. Mullan also once told me something that has stuck in my mind: His bike commute is the best part of his day.

Through trial and error, Mullan has learned which route from his home in Milton to his Seaport District office is best,



MATTHEW J. LEE/GLOBE STAFF

It's safety first for Jeff Mullan — helmet and fluorescent jacket, and no biking after dark or in the rain.

and he's figured out the optimal times to travel — minimizing close encounters with big, scary vehicles is paramount. The commute is about 40 minutes door-to-door, which is faster than relying on the MBTA.

Mullan also avoids biking in the dark, which means he only rides between March and November. Nor does he bike in the rain. And he wears what I have learned to recognize as the commuter cyclist uniform: A sturdy helmet and anything fluorescent yellow.

The day I commuted with him we left Milton at 7 a.m., about a half-hour after sunrise. The route: down Central Avenue to the Neponset River Greenway Trail, then onto side streets in Dorchester along Tenean Beach. We came up Freepost Street and shot onto Morrissey Boulevard to Day Boulevard, and then onto Old Colony Avenue to Dor-

chester Avenue toward downtown. We turned onto A Street, which led us into the Seaport.

Easy, right?

I worried the ride would be physically challenging, especially with my arthritic hip, but it wasn't. Instead, the experience was mentally exhausting, at once harrowing and cathartic. You can't beat the freedom and fresh air that come with cruising along the Neponset River and Boston Harbor on a crisp, sunny morning — not to mention the sense of accomplishment of having biked to work, all by 8 a.m.

But I could have done without the constant reminders of my mortality.

During the trip, I saw my life flash before my eyes twice — both times on Morrissey Boulevard: first, when cars from the Southeast Expressway zipped down a ramp to merge, and later

as we wheeled around Kosciuszko Circle, which is anxiety-inducing even in a car.

When we crossed from the circle into South Boston, I was greeted by a welcome sight — a brightly painted, dedicated bike lane.

It was at this point, about halfway into the journey, that I realized this cycling experiment would make me a better driver, one more mindful of how to share the road.

For example, I have a new perspective on double-parked vehicles, especially delivery trucks, which are ubiquitous. They are like land mines for cyclists. That was ever more apparent as we traveled along Dorchester Avenue in Southie. All I could think about is how one ill-timed door opening could send me tumbling into oncoming traffic.

Turns out, there are many people like me. Call us the bike curious. One oft-cited research study out of Portland State University suggested there are four types of cyclists: the fearless, the confident, the interested but concerned, and the "no way, no how."

The vast majority of people fall into the latter two categories: roughly 30 percent have no interest in cycling, while more than 50 percent would like to bike more, but worry about getting hurt or worse.

"What that means is that we have a huge potential to capture new riders," said Becca Wolfson, executive director of the Boston

Cyclists Union, an advocacy group.

That opportunity is loudly knocking now. It might be the silver lining of a subway system in disarray: The use of Bluebikes, which Boston made free during the monthlong Orange Line shutdown, surged to about 635,000 trips between Aug. 19 and Sept. 18, a more than 50 percent increase compared with the same period last year.

The bike traffic was noticeable, especially along the Southwest Corridor bike path, which runs parallel to the Orange Line from Forest Hills to the Back Bay.

This moment is not lost on Joshua Franklin-Hodge, the city's chief of streets, who gets around primarily on his bike. Cyclists have been pressuring the Wu administration to improve the city's bike infrastructure. In August, some of them staged a protest by forming a "people-protected bike lane" along Charles Street on Beacon Hill.

In September, the city unveiled a three-year plan to vastly expand its bike network so that 50 percent of residents will be within a three-minute walk to a connected bike route. The focus has been about making cycling a safe and viable mode of transportation, and less about building out recreational trails.

"There's a stereotype of bikers as being these kind of gear-obsessed, spandex-clad, race-affiliated-type people. But when I actually ride in the city, I see al-

most none of that," said Franklin-Hodge. "What I see is normal everyday people . . . who are just living their life and doing their thing, and they found a way to do it with a bike. So that to me is the future of biking in Boston."

Even though I lived to tell the tale of biking to work, I'm not sure I will do it again. Maybe it would be more practical with an e-bike — a bike with an electric motor, so I don't have to break a sweat — and safer after the state creates a dedicated bike lane along Morrissey Boulevard, which is in the works.

Still, in the days that followed my inaugural bike commute, I couldn't stop thinking about how I could bike more and drive less in other parts of my life. Ultimately, conversion is as much about getting people out of their cars to save the environment — and their sanity — as it is about avoiding traffic and getting some exercise.

Instead of driving to the Open Streets festival on Dorchester Avenue last Saturday, my 11-year-old son and I arrived on bikes. It took us 15 minutes. On Monday, I had to drop something off at the post office, which is about a mile from my house. It was six minutes by bike.

Efficient and environmentally friendly, sure, but Mullan is onto something else. Biking is often the best part of my day, too.

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