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The MIT Media Lab welcomed thousands of in-person visitors and guests from global corporations and academic institutions, leading philanthropic organizations, students, teachers, and other collaborators. We broadcast to the world incredible research coming from our students and faculty through our digital channels. Over 1.3M users from 177 countries visited media.mit.edu in FY23, viewing over 4.6M pages. Our social media footprint grew to over 1M followers, and delivered approximately 14M impressions.

The lasting design influence of the Media Lab and its founding members was also showcased this year with the Museum of Modern Art's acquisition of the MIT Press colophon, or logo, for its permanent collection. The iconic emblem was created by Muriel Cooper in 1965, during her tenure as the first design director of the MIT Press; she later became a founding faculty member of the Media Lab.

The Media Lab’s impact beyond MIT was also made apparent with events such as the announcement of the Norman Foster Foundation’s launch of the Norman Foster Institute (NFI), as City Science head Kent Larson will serve as co-director, while Professor Dava Newman has joined the Academic Council serving as honorary dean. Additionally, Scratch reached an amazing milestone, with 100 million global users, and finally, the Media Lab was thrilled to be part of the launch of Institute for Future Technologies (IFT) in Paris. Founded by Media Lab alumni and collaborators, IFT aims to bring the MIT Media Lab’s unique, transdisciplinary research culture to French higher education. Professors Hiroshi Ishii, Pattie Maes, and Joe Paradiso spoke at the inaugural event; the IFT’s Instant Futures talks and artist in residence program have already hosted a number of Media Lab alumni.

Additionally, members of the Media Lab community, including Director Dava Newman and Dr. Neha Narula, traveled to Davos, Switzerland to speak about Media Lab research at the World Economic Forum’s (WEF) Annual Meeting, which centered on the theme “Cooperation in a Fragmented World.” There, they participated in discussions on the Earth Data Revolution, Space Economy, Future of Exploration, Digital Currencies, and Digital Cities.

The world premiere of Professor Tod Machover’s Overstory Overture took place at the Lincoln Center in New York City on March 7. Following the premiere in New York, the concert traveled to Korea for the Asia premiere, held at the Seoul Arts Center on March 16.


In conclusion, throughout fiscal year 2023, the MIT Media Lab has focused on enhancing our internal and external communications with a reimagined Mission, Vision, and Shared Values, expanding engagement opportunities for global corporate and philanthropic entities, establishing active collaborations with other MIT organizations, and conducting its unique style of innovative ground-breaking research – characterized by academic excellence and in support of MIT’s mission and values. The following report details key activities.
A man interacts with a neuro-controlled prosthetic hand; Jimmy Day
The MIT Media Lab is an interdisciplinary creative playground rooted squarely in academic excellence, comprising dozens of research groups, initiatives, and centers working collaboratively on over 800 projects within the Lab and across the MIT campus. We focus not only on creating and the potential commercialization of transformational technologies, but also on their potential to impact society for good.

In fiscal year 2023, the MIT Media Lab unveiled our Strategic Foresighting with a renewed Mission, Vision, and Shared Values. We continued to focus on Director Prof. Dava Newman’s priority of establishing strategic frameworks to enable long-range planning and leadership in some of society’s hardest challenges for the future. As part of this goal, the Lab introduced five Collective Research Themes as a means of articulating areas of focus and the connections between the diverse research projects at the Lab, and communicating these connections to both internal and external audiences.
Cultivating Creativity

Future Worlds

Life with AI

Connected Mind + Body

Decentralized Society
The five research themes

**Connected Mind + Body: Revolutionizing the future of mental and physical wellbeing**  
led by Professors Rosalind Picard and Pattie Maes

**Cultivating Creativity: Catalyzing a global movement enabling everyone to unlock and unleash their individual and collective creativity**  
led by Professors Mitchell Resnick and Tod Machover

**Decentralized Society: Architecting the new internet for the good of the people**  
led by Professor Ramesh Raskar, Dr. Neha Narula, and Professor Alex ‘Sandy’ Pentland

**Future Worlds: Design and action for the future we want to live in**  
led by Director Dava Newman and Professor Fadel Adib

**Life with AI: Designing the future of smart systems to improve the human experience**  
led by Professor Pattie Maes and Dr. Andrew Lippman

In sharing the inspiration and magic of the Media Lab’s Mission, Vision, and Values statements we have worked extensively within our own community as well as external communications to let the world know about the reimagined, hopeful, and amazing work of the Media Lab. We also created a Data Visualization Map to illustrate the interconnected nature of our research groups, centers, and to understand the Media Lab ecosystem, our work and priorities, and our leadership and engagement across MIT and beyond.
The research

5 collective research themes
27 research groups, initiatives, and centers
800+ research projects
50 new projects started in the last twelve months

The business

35 industry member companies
100+ spinoff technologies
The people

25 faculty/PI
229 students
165 staff
77 affiliate/visiting
425 undergraduate researchers

The reach

4.4M website page-views
1.25M website users
13M+ social media impressions
1M social media followers
We continue to enhance our **Consortium Membership**, adding five new member companies in FY23 with flexible options increasing the value to a diversified portfolio of industry, government, and international members. We also received over 100 expendable gifts, totaling $13.2 million. Our 10-year sustainable financial model is now being implemented with balanced budgets and robust support from sponsored research, philanthropy, and consortium members.
### MIT Media Lab members

#### Consortium Research Lab Members
- Harman International Industries, Samsung Company
- Kasikorn Business-Technology Group (KBTG)
- Kioxia Corporation
- NTT DATA Corporation
- Panasonic Holdings Corporation

#### Consortium Lab Members
- A.T. Kearney
- Accenture
- BP
- Cisco Systems, Inc.
- Comcast
- Dell EMC
- Deloitte LP
- Dematic
- DENTSU INC.
- DP World
- A global transportation and logistics company
- Google
- Honeywell
- Hyundai Motor Company
- IDEO Boston
- Intuit Inc.
- KPMG Private Enterprise

#### Endowment and Naming Grants
- L'Oreal USA
- McKinsey and Company
- NEC Corporation
- PTC
- Samsung Electronics Co., Ltd.
- SHIMA SEIKI MFG., LTD.
- Steelcase Inc.
- Takeda Pharmaceutical Company
- TOPPAN Inc.
  + *Translucia*
- Trust
  + *US Government*
- Walmart
- Affiliate Foundation Members
- Robert Wood Johnson Foundation
- The LEGO Group
- Dorothy Lemelson
- LG Electronics, Inc.
- MasterCard International
- Motorola, Inc.
- Masanori Nagashima 1976
- NEC Corporation
- Isao Okawa
- Schlumberger Ltd.
- Sony Corporation
- Steven R. Holtzman Fund
- Swatch AG
- Telmex
- Toshiba Corporation
- Philippe Villers
- Sponsored Projects (Media Lab + Center for Bits + Atoms)
- Aerospace Corporation
- Air Force Research Laboratory
- Alfred P. Sloan Foundation
- Amazon.com Services LLC
- Andorra Research and Innovation
- Andrew W. Mellon Foundation
- Arizona State University
- Bank of Canada
- Bank of England
- Baylor College of Medicine
- Ben-Gurion University of the Negev
- Bill + Melinda Gates Foundation
- Brigham + Women’s Hospital

*Bold text indicates contributors who have provided financial support to the Media Lab.*
Burroughs Wellcome Fund
Camara Chilena de la Construccion
Center for the Advancement of Science in Space
Cotrone Foundation, Inc.
Cortico Corporation
Dassault Systemes SolidWorks Corporation
Dassault Systemes U.S. Foundation
Defense Advanced Research Projects Agency
Defense Science + Technology Agency
Deloitte Consulting LLP
Diputacion Foral de Gipuzkoa
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Electronics + Telecommunications Research Institute (ETRI)
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Fondazione Fratelli Agostino ed Enrico Rocca
Food and Drug Administration
Future Earth International
Georgia Institute of Technology
Google, Inc
HafenCity University (HCU)
Healthy Minds Innovations, Inc.
Institute of Museum and Library Services
IPG DXTRA, Inc d/b/a Weber Shandwick
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Portuguese Science and Technology Foundation
ProjectSTEM
Public Broadcasting Service
Republic of Sierra Leone - Directorate of Sci, Tech and Innovation
Spotify USA, Inc.
Standard Bank Group
Systems + Technology Research LLC
The Carnegie Corporation of New York
The G. Harold + Leila Y. Mathers Charitable Foundation
The Robert Wood Johnson Foundation
The World Bank
Tongji University
Toyota Motor Corporation
US Department of Commerce-NIST
United States Army Medical Research Acquisition Activity
Universidad Rey Juan Carlos
University of Colorado Boulder
University of Guadalajara Central
Urban Planning Institute (UPI)

*Member who joined in 2023
At the Institute level, Director Newman and the Media Lab have also continued to forge relationships. Both of the tenure-track faculty searches launched by the Program in Media Arts and Sciences in FY23 reflected this spirit of collaboration: one was a joint search with the MIT Schwarzman College of Computing (SCC), while the other is in close collaboration with the MIT Morningside Academy for Design, to shape the future of design across the Institute.

In another cross-Institute collaboration, Professor Hugh Herr leads the MIT team implementing a collaboration between the K. Lisa Yang Center for Bionics and Sierra Leone's Ministry of Health and Sanitation. This collaboration aims to strengthen and expand the country's orthotic and prosthetic sector.

The opening of the new MIT Museum featured a wide range of Media Lab research, both past and present. A number of Media Lab projects are on display in the Museum's new space.

Cynthia Breazeal leads MIT RAISE (Responsible AI for Social Empowerment and Education), an MIT-wide initiative headquartered in the MIT Media Lab and in collaboration with the MIT Schwarzman College of Computing and MIT Open Learning. In its second year, the Day of AI curriculum developed by RAISE added a number of new modules that reflect the rapid changes in AI technologies. Over 6,000 K-12 educators from all 50 states and 100+ countries registered to access the Day of AI curriculum. Read the MIT News story.

The Media Lab is also home to the MIT Center for Constructive Communication (CCC), which develops methods for understanding current social and mass media ecosystems and designs new communications tools and spaces for bridging societal divides. The MIT Center for Constructive Communication hosted its first in-person event, Real Talk, Real Listening, and Trust in the Age of Social Media and Generative AI, on May 10. Read more about the CCC's work in MIT News.
MIT Media Lab research
2022–2023
conformable Ultrasound Patch (cUFP) for Cavitation-Enhanced Transdermal Drug Delivery

Researchers from the Conformable Decoders research group, with collaborators from the University at Buffalo, NY, have developed a lightweight, wearable patch that applies painless ultrasonic waves to the skin, creating tiny channels that drugs can pass through. In *MIT News*, Professor Canan Dagdeviren says, “Delivering drugs this way could offer less systemic toxicity and is more local, comfortable, and controllable.” This research was also featured on the cover of *Advanced Materials*.

Cell Rover—a miniaturized magnetostrictive antenna for wireless operation inside living cells

In *Nature Communications*, researchers in the Nano-Cybernetic Biotrek group describe the first demonstration of an antenna that can work inside a living cell, be remotely operated, and that's compatible with 3D biological systems — “cyborgs at a cellular scale,” as Professor Deblina Sarkar describes them in *MIT News*. The National Academy of Engineering’s Frontiers of Engineering program featured this work on its homepage. Professor Deblina Sarkar also discussed key challenges in developing Cell Rover and potential future uses of the technology in *Scientific American*.

Expansion revealing

Inside a cell, molecules are often tightly packed together, making them difficult to image. In *Nature Biomedical Engineering*, Professors Deblina Sarkar and Ed Boyden are among the co-authors of a paper presenting a novel way to expand a cell or tissue sample before labeling its molecules, making them more accessible to fluorescent tags. This technology allows researchers to reveal never-before-seen biomolecular nanoarchitectures of the brain. Read more in *MIT News*.

conformable Multimodal Sensory Facemask

In *Nature Electronics*, researchers from the Conformable Decoders group, with collaborators from across MIT, present a conformable Multimodal Sensory Facemask (cMaSK) that can be attached to the inside of any facemask and used to monitor signals related to health, environmental conditions, and the fit and wear status of the facemask. In the researchers’ clinical
trials, which included equal numbers of male and female subjects, they found that overall, the masks fit women’s faces much less closely than they fit men’s faces. “What we realized by analyzing our collected data from the individuals in the study was that the masks that we use in daily life are not very suitable for female participants,” says Professor Canan Dagdeviren. cMaSK was featured on the front cover of the November edition of *Nature Electronics*.

**Magnetomicrometry: Tissue Tracking via Implanted Magnetic Beads**

In a pair of papers published in *Frontiers in Bioengineering and Biotechnology*, researchers from the Biomechatronics group and collaborators demonstrate the accuracy and safety of a magnet-based system for controlling prosthetic limbs, called magnetomicrometry. The system uses small, implantable magnets to track the length and position of muscles during natural activity, potentially allowing people with prosthetic limbs to exercise more precise, natural control over them. Read more in *MIT News*. 
Cultivating Creativity

Dormio

In *Scientific Reports*, researchers from the Fluid Interfaces group – postdoc Adam Haar Horowitz, undergraduate researcher Kathleen Esfahany, alum Tomás Vega Gálvez, and Professor Pattie Maes, with Professor Robert Stickgold of Harvard Medical School – show that naps can make people more creative, especially when they’re prompted to dream about a particular topic during the phase between sleep and waking. “When you are prompted to dream about a topic during sleep onset,” Esfahany tells *MIT News*, “you can have dream experiences that you can later use for these creative tasks.” In *Scientific American*, Haar Horowitz says, “This validates centuries of anecdotal reports from people who are in the creative space.”

Living Knitwork Pavilion

A team of researchers across the Media Lab and the MIT School of Architecture + Planning, led by Irmandy Wicaksono (Responsive Environments), received a Black Rock City 2023 Honoraria art grant for the Living Knitwork Pavilion – an interactive, knitted-textile shade structure at an architectural scale. The team also includes Gabriela Bílá Advincula (City Science), Sam Chin (Responsive Environments), Alfonso Parra Rubio (Center for Bits + Atoms), Cathy Fang (Tangible Media), Cédric Honnet (MAS/Responsive Environments), Judyta Maria Cichoka (Architecture), Ramon Weber (Architecture), and Tongge Yu (Mechanical Engineering).
CoCo
Manuj Dhariwal and Shruti Dhariwal (Lifelong Kindergarten) launched a new co-creative learning platform that extends and builds on top of the Scratch 3.0 and p5.js environments to support real-time collaboration for block-based coding, text-based coding, art-making, and creative writing. They shared their motivations, ideas, and values in creating the platform in a blog post, writing that “We hope that [CoCo] can serve as a microworld for young people to explore and experiment with new modes of thinking and new ways of being in relationship with others – as they set out to co-create their joyful, just, and sustainable shared futures.”

ChillsDB
In Frontiers in Neuroscience, researchers from the Fluid Interfaces group published the results of a study finding that participants who experienced chills reported more positive emotional valence and greater arousal than those who didn’t. (“Emotional valence” refers to how positive or negative an emotion is – emotions like joy are positively valanced, while emotions like rage are negative, while arousal refers to how strong an emotion is.) The findings suggest that experiencing aesthetic chills plays a role in influencing a person’s perception and affective evaluation of stimuli. For the study, the researchers used ChillsDB, an open source repository of audiovisual stimuli eliciting aesthetic chills (goosebumps, psychogenic shivers), which was also developed in the Fluid Interfaces group. Co-author Abhi Jain (Fluid Interfaces) spoke to Motherboard about the work.

How to Grow (Almost) Anything
In Nature Biotechnology, a team of MIT and Harvard Medical School faculty, teaching assistants, and students describe how they redesigned “How to Grow (Almost) Anything” (HTGAA) – a hands-on, lab-based synthetic biology course – for hybrid distance learning. David Sun Kong, head of the Media Lab’s Community Biotechnology Initiative, says students from six continents have now taken the course, creating a worldwide network of HTGAA alumni: “As the global reach expands,” he says in MIT News, “we’re really building a rich and powerful innovative global learning community that goes far beyond just the course itself.”
Why voters who value democracy participate in democratic backsliding

In *Nature Human Behaviour*, a team of researchers from the Media Lab, MIT Connection Science, and the University of California, Berkeley showed that partisan voters in the US are more willing to subvert democratic norms if they think their opponents are doing the same. However, showing them evidence that their opponents value those norms makes them more likely to uphold them.

The social media context interferes with truth discernment

Ziv Epstein (Human Dynamics), Professor David Rand (MIT Sloan), Professor Gordon Pennycook (University of Regina), Professor Antonio Arechar (MIT Sloan; Center for Research and Teaching in Economics), and Nathaniel Sirlin (MIT Sloan) published a new paper in *Science Advances* that builds on previous work to find that the design of social media platforms may make users more likely to share misinformation, by distracting them from thinking about accuracy. Learn more in *MIT News*. 
Battery-free, wireless underwater camera

In *Nature Communications*, the Signal Kinetics research group presents a battery-free, wireless camera for underwater imaging, which has applications in climate change monitoring, ocean exploration, weather prediction, pollution tracking, and food security. Read more in *MIT News*.

Research in remote places

The Axiom-2 Mission carried two Media Lab payloads to the International Space Station—the Humanity United with MIT Art and Nanotechnology in Space (HUMANS) nanowafer, and the Gravity Loading Countermeasure Skinsuit. Additionally, the Space Exploration Initiative launched three experiments to the International Space Station in November, 2022:

- Extrusion, which uses liquid resin to create shapes and forms that cannot be created on Earth
- MicroPET, an investigation of the biodegradation of PET plastics in spaceflight
- BioX2: Biological Exploration Payload 2, which is a technological demonstration for biological sample automation, nucleic acid extraction, and nanopore sequencing in space

Two multidisciplinary teams from the Media Lab and other departments across MIT also tested technology for space, with applications for remote regions on Earth, in Svalbard, Norway, one in October 2022 and the other in July 2023.
Machine Learning Technology Readiness Levels

In *Nature Communications*, Media Lab Director Dava Newman and a diverse group of experts from both academia and industry present a Machine Learning Technology Readiness Levels (MLTRL) framework, which provides guidelines for developing robust, reliable, and responsible machine learning—from basic research through productization and deployment.

**ORCa: Glossy Objects as Radiance-Field Cameras**

Researchers from the Media Lab and Rice University demonstrate a computer vision technique that essentially turns glossy objects into “cameras.” The system converts the surfaces of shiny objects into virtual sensors to capture reflections, then creates a map of the scene—estimating depth and capturing novel views that would only be visible from the perspective of the objects themselves. The paper, presented at the Conference on Computer Vision and Pattern Recognition, was co-authored by Kushagra Tiwary (Camera Culture), Akshat Dave (Rice University), Nikhil Behari (Camera Culture), Tzofi Klinghoffer (Camera Culture), Rice University Professor Ashok Veeraraghavan, and Media Lab Professor Ramesh Raskar.
X-ray vision, using computer vision and wireless perception

Developed by the Signal Kinetics research group, X-AR combines augmented reality with RFID technology to give users X-ray vision, using computer vision and wireless perception to locate hidden items and guide users to find them. The system has potential applications in a range of fields, including manufacturing, inventory control, warehouse management, and more. Professor Fadel Adib tells MIT News, “Our whole goal with this project was to build an augmented reality system that allows you to see things that are invisible – things that are in boxes or around corners – and in doing so, it can guide you toward them and truly allow you to see the physical world in ways that were not possible before.” The research team also includes Signal Kinetics students Tara Boroushaki, Maisy Lam, and Laura Dodds, and former postdoc Aline Eid.

Towards Transparency in Dermatology Image Datasets with Skin Tone Annotations by Experts, Crowds, and an Algorithm

Matthew Groh and Caleb Harris (Affective Computing), alongside collaborators, examine expert, crowd, and algorithmic methods for annotating skin tone to audit and address algorithmic bias, in specific regard to dermatology diagnosis within the medical field. The research builds on previous studies, such as the Gender Shades project led by alum Dr. Joy Buolamwini (Civic Media), to increase transparency in machine learning processes.
In FY23, the Media Lab submitted 90 proposals for new or continuing directed research projects, including fellowships and no-cost collaborations. Approximately 14% of these proposals were for subawards in collaboration with other institutions. Forty-seven proposals remain under consideration, and 33 have resulted in awards. Thirty-eight percent of the proposals submitted were in response to government solicitations (e.g., NSF, NIH, DARPA, DOD, NASA), while others were submitted to foundations and other sponsors. The new awards ranged from $20,000 to $2 million with durations of two months to four years.

In addition, the Center for Bits and Atoms submitted four proposals for new or continuing directed research projects. Of the four, two resulted in awards, one was rejected, and one is still under consideration. All four proposals submitted were in response to government solicitations (e.g., NSF, NIH, Air Force Research Lab, DARPA). The funded awards range from $50,000 for one year (NSF I-Corps) to $659,720.47 for 24 months.
In FY23, there were 10 provisional patents filed, and 11 utility patents issued on Media Lab research.

There are currently 85 active MIT Media Lab patent licensees, including:

- Bank of America
- Echo/Nest
- Ford Motor Company
- France Telecom
- Genentech
- IBM
- Intel
- Macmillan/Mcgraw-Hill
- Mattel
- Microsoft
- Novartis
- Panasonic
- Samsung
- Steelcase
MIT Media Lab events, talks, exhibitions, and performances
In FY23, the Media Lab welcomed member companies, donors, and invited guests back to the Lab for the largest in-person meetings since 2019. We made several changes to the format, to reflect the new research themes and emerging areas of member interest. At the 2022 Fall Meeting, Director Dava Newman and Professors Tod Machover and Joe Paradiso celebrated Glorianna Davenport, a founding member of the Media Lab whose vision and ongoing collaborations continue to shape the Lab's research and community.

The Media Lab's Digital Currency Initiative co-hosted the Advances in Financial Technologies conference with the Association for Computing Machinery. (September 19–21, 2022)

Member company Samsung and the Media Lab co-hosted a hackathon, Project the Future of Wellbeing, inspired by the work of Professor Bill Mitchell, who led the Smart Cities research group at the Media Lab. (September 23–25, 2022)
Guest speakers at the 2022 City Science Summit included Director Dava Newman, Lord Norman Foster, Massachusetts Senator Ed Markey, members of the City Science group and City Science Network, and more. (October 27–28)

Co-hosted by KBTG and Bangkok Bank in collaboration with True Corporation, the MIT Alumni Association in Thailand, and more, the Media Lab’s first-ever Southeast Asia Forum invited participants to co-create new possibilities in Southeast Asia and think beyond the “elephant” in the room – humanity’s greatest challenges that are often ignored. (December 19–21, 2022)

At Beyond the Cradle, hosted by the Media Lab’s Space Exploration Initiative (SEI) and the Aurelia Institute, a nonprofit spinoff led by Dr. Ariel Ekblaw, Dr. Ekblaw announced that Dr. Cody Paige will assume leadership of SEI in September, 2023. (March 15, 2023)
A selection of talks, exhibitions, and performances

Professor Kevin Esvelt testified before the Senate Subcommittee on Emerging Threats and Spending Oversight (ETSO); his testimony, titled “Credible pandemic virus identification will trigger the immediate proliferation of agents as lethal as nuclear devices,” focused on the risks of identifying pandemic-capable viruses. (August 3, 2022)

Two Mobility Futures ∞∞, a research project from the City Science group that encompasses storytelling, a democratic decision making platform, a city model, and an immersive exhibit, was on display at the Guggenheim Museum Bilbao as part of an exhibit titled Motion. Autos, Art, Architecture, curated and designed by Norman Foster. (Through September 18, 2022)

Cambridge Science Festival: This week-long celebration, distributed across the city of Cambridge contained an action-packed program of events, demonstrations, workshops, and performances showcasing the magic and mayhem of modern science. Explore Media Lab contributions to the festivities below:

• 10/5, 5pm ET, Bartos Theater (E15-70): NeuraFutures Lecture on the fiction and science of brain interfacing. There were also guided tours of the NeuraFutures exhibit in the Media Lab lobby.

• 10/8, 1pm ET, MIT Museum (314 Main St.): A live performance of Tapis Magique, a project led by Irmandy Wicaksono (Responsive Environments), with collaborators Don Derek Haddad (Responsive Environments) and dancer Loni Landon. Wicaksono’s 3DKnITS and KnittedKeyboard projects were also exhibited during the day at the MIT Museum Maker Hub.

• 10/9, 12-4pm ET, Kendall/MIT Open Space: Nataliya Kos’myna (Fluid Interfaces) taught visitors of the Robot Petting Zoo to control a robot using their brains; the Personal Robots group was also there with interactive activities to help participants learn more about AI, in How to Train Your Robot.
The MIT Museum hosted the launch of the MIT Morningside Academy for Design (MIT MAD), featuring a day of dynamic presentations by designers and thought leaders in dialogue on how interdisciplinary design can influence and frame our responses at this time of extraordinary global need. Director Dava Newman moderated a session titled “Design Transforms Learning.” (October 18, 2022)

Professors Joseph Paradiso and Pattie Maes delivered keynotes at MIT Osmocosm, a three-day conference bringing together entrepreneurs, academic and industry leaders, and artists and designers working with scent and the sense of smell to create the future of olfaction tech. (October 20–22, 2022)

One Ocean, Our Future: Research scientist Dan Novy developed five interactive kiosks for this exhibition at the Australian National Maritime Museum. The project, a collaboration with Schmidt Ocean, began with research in the Lab’s Open Ocean Initiative, which has since spun out into a nonprofit, the Ocean Discovery League. (Through October 31, 2022)

Professor Danielle Wood spoke about the role of commercial and public actors in the future of space during the 2022 Bloomberg New Economy Forum. (November 14, 2022)

The Milan Triennale, Unknown Unknowns, featured Spatial Flux – a prototype developed by Carson Smuts, Chrisoula Kapelonis, and Kent Larson (City Science) and in conjunction with the Space Exploration Initiative. (Through December 11, 2022)

Members of the Media Lab community traveled to Davos, Switzerland to speak at the World Economic Forum’s Annual Meeting, which centered on the theme “Cooperation in a Fragmented World.” There, they participated in discussions on the Earth Data Revolution, Space Economy, Future of Exploration, Digital Currencies, and Digital Cities. (January 16–20, 2023)
Co-chaired by Vint Cerf and Gregg Vanderheiden, the Future of Interface workshop featured Media Lab Professor Hiroshi Ishii, research scientist Natallia Kos'myna (Fluid Interfaces), alum Andy Wilson (Vision and Modeling), and other experts in areas such as AR/VR/XR, AI, and brain-computer interfaces. (February 15–16, 2023)

Can we engineer a perfect world? Professor Rosalind Picard moderated a conversation between Harvard Professors Tyler VanderWeele and Steven Pinker in this Veritas Forum event, which explored human flourishing through secular and Christian lenses. (March 2, 2023)

The world premiere of Professor Tod Machover’s Overstory Overture, featuring Joyce DiDonato, took place at the Lincoln Center in New York City. The narrative for this 30-minute work, for a single voice, chamber ensemble, and electronics, is based on Richard Powers’ 2018 Pulitzer-Prize winning novel, The Overstory. Following the premiere in New York, the concert traveled to Korea for the Asia premiere, held at the Seoul Arts Center on March 16. Professor Machover, Ms. DiDonato, and Mr. Powers spoke to The New York Times about the work. Professor Machover also discussed Overstory Overture and the use of AI in classical music with the Washington Post. (March 7, 2023)

Professor Danielle Wood gave a presentation at the United Nations Committee on the Peaceful Uses of Outer Space in Vienna. (June 5, 2023)

Media Lab Director Dava Newman spoke at the 2023 VivaTech conference as part of a panel titled “Interplanetary Future to Enhance Life on Earth,” with Jeremy Wilks of Euronews and Axiom-2 astronaut John Shoffner. (June 14)

METALLIC KUSUDAMA: On display in the E14 lobby, this exhibition explores the creative potential of computational origami. The project was created by RnKOKEKTIVE: Alfonso Parra Rubio (MIT Center for Bits + Atoms (CBA)), Eyal Perry (Molecular Machines), Camron Blackburn (CBA), and colleagues from across MIT, with support from Arts at MIT. (Through September 1, 2023)

Media Lab researchers spoke at several TEDx events in the Boston area throughout the year:

- TEDxBoston: Planetary Stewardship (November 13–14, 2023)
- TEDxBoston: Countdown to Artificial General Intelligence (March 6, 2023)
- TEDxBentleyU: Plot Twist! (April 2, 2023)
- TEDxBoston: AI + Future of Healthcare (May 15, 2023)
Administrative groups
The Media Lab continues to receive significant media coverage in a variety of print, broadcast, and online sources, including:

**MIT Homepage Spotlight**
- **Equity, computing, and education** (June 29, 2023)
- **Palm oil alternative** (June 22, 2023)
- **Calling all makers** (June 5, 2023)
- **The dream team** (May 16, 2023)
- **Access to assistive tech** (May 14, 2023)
- **Reflection-based camera** (May 10, 2023)
- **Wear your medicine** (April 21, 2023)
- **Sharing without caring** (March 5, 2023)
- **Sensing with purpose** (January 24, 2023)
- **The beautifully engineered human body** (November 27, 2022)
- **A flock of robots** (November 23, 2022)
- **How does that mask fit?** (October 23, 2022)
- **Undersea Imagery** (September 27, 2022)
- **Seeing the unseen** (August 30, 2022)
- **Motion-sensing knits** (July 7, 2022)

**Op-Eds and Essays**
In an opinion piece in *The Seattle Times*, Professor Deb Roy cites alarming survey data that detail how Americans embrace radically inaccurate caricatures of “the other side.”

For *Teen Vogue’s Disability (In)Justice* series, Francesca Riccio-Ackerman (Biomechatronics) talks about how her lifelong dream of becoming a biomedical engineer led to her passion for designing a better healthcare system that’s fairer for all patients.

In a new paper published by the Geneva Center for Security Policy, Professor Kevin Esvelt laid out a blueprint for preventing, preparing for,
and responding to future pandemics, whether they arise from natural processes or from biotechnology.

Former Massachusetts Governor Michael Dukakis, Boston Global Forum CEO Nguyen Anh Tuan, and Media Lab Professor Alex ‘Sandy’ Pentland called for a global “AI Bill of Rights” that would help protect fairness, promote accountability, support innovation, and develop ethical guidelines.

In *Wired*, alum J. Nathan Matias (Civic Media), now a faculty member at Cornell University, asks, “How is it that public health has delivered on its promise to improve the lives of millions, while failing to resolve the dramatic health disparities of people of color in the US? And what can the movement for tech governance learn from these failures?”

Kevin O’Connell, an affiliate of the Space Enabled research group, and collaborators wrote an op-ed for *SpaceNews* titled, “Practical applications of a space mission authorization framework.”

**Other Notable Coverage**

In the *Los Angeles Times*, critics, practitioners, and researchers like Ziv Epstein (Human Dynamics) talk about the promise and possible consequences of AI-generated art.

As part of *Nature’s* special issue on racism in science, Abeba Birhane’s essay “The unseen Black faces of AI algorithms” considers the impact of *Gender Shades*, Media Lab Alumna Dr. Joy Buolamwini’s (Civic Media) groundbreaking investigation of racial bias in facial recognition algorithms. Dr. Buolamwini’s work was also featured on an episode of *Last Week Tonight with John Oliver*.

On *NOVA | PBS*, experts like Neha Narula, Cleve Mesidor, executive director of the Blockchain Foundation, and Vernon J., the founder of Generational Wealth Organization, explore the social and technological foundations of crypto.

For the *Wall Street Journal’s* “Future of Everything,” Ariana Perez-Castells talks to Professor Pattie Maes and five other experts about emerging health and wellness technologies that may help to diagnose and treat disease, improve sleep, and save lives.
Professor Danielle Wood talks to NPR’s Short Wave about the Space Sustainability Rating and balancing economic growth with environmental and cultural wellbeing.

“Robots are going to be a new kind of social relationship; it might be like a pet, or it might be something totally different.” Dr. Kate Darling (Personal Robots) talks to El País about AI, robots, and human relationships to technology.

Other media outlets covering the Lab include:

Fiscal year 2023 ended with healthy research portfolios and a balanced general lab budget. As we enter the third quarter of fiscal year 2024, the lab's financial outlook can be characterized by both opportunities and challenges. Our research portfolios are growing and the lab's general budget is balanced for the second consecutive year. Excellent progress has been made to increase fellowships and student support. However, rebuilding our membership portfolio remains a challenge. The lab's financial outcomes are reflective of careful management of limited resources as we work towards our goal of sustainable growth and long-term stability.

Where the money comes from...
Revenues

- Endowment, Central MIT, Other 35%
- Sponsored Research 21%
- Consortium 24%
- Gifts 20%
- Research Projects 11%

...and where it goes
Expenditures

- Research + Academics 61%
- RA Stipend + Tuition 21%
- Lab Admin. 13%
- Faculty 5%

FY 2023
7/1/22–6/30/23
Key Searches and Appointments:

Chief of Staff: Kimberly Slater  
Director of Development: David Cave  
Member Relations Program Manager: Ashley Bell Clark  
Design Lead: Olivia Verdugo

Employee awards:

MIT Excellence: Lindsey Charles  
MIT Excellence: Benoit Desboilles  
MIT Excellence: Mahy El-Kouedi  
Infinite Mile: Candido Monteiro

Infinite Mile: Nicole Degnan  
Retirement: David Robertson
Program in Media Arts and Sciences

The Media Lab is the home of the Program in Media Arts and Sciences (MAS), based within MIT’s School of Architecture + Planning. Each year, the program accepts approximately 40-50 master’s and PhD candidates with backgrounds ranging from computer science to psychology, architecture to neuroscience, engineering to material science, music to design, and more.
A total of 158 students – 58 master’s candidates and 100 doctoral candidates – were enrolled in the Program in Media Arts and Sciences (MAS) graduate program during the 2022-23 academic year. In addition to supervising MAS graduate students, MAS faculty and research staff collectively advised and supported more than 36 graduate students from other MIT departments, including Biological Engineering, Biology, Computational and Systems Biology, Electrical Engineering and Computer Science, Mechanical Engineering, Aeronautics and Astronautics, Integrated Design and Management, Urban Studies and Planning, Sloan, and Microbiology. Faculty also supervised students from the Harvard-MIT Division of Health Sciences and Technology (HST).

MAS offered 40 graduate courses and 2 undergraduate courses during the 2022-23 academic year. The MAS graduate student community included 62 women, 77 international students, and 21 students from underrepresented minority groups. During the year, 41 advanced degrees were awarded (24 master’s and 17 doctorates).

For the 2022-2023 academic year MAS received 935 master’s applications and admitted 28 new master’s students, a 2.9% admissions rate. In Fall 2023 25 students are expected to enroll, an 89 percent yield.
Diversity + Student Support

MIT Summer Research Program (MSRP)
MSRP brings undergraduate students from across the United States to conduct research at MIT for nine weeks over the summer. In addition to gaining research experience, interns learn about applying to and succeeding in graduate school. In the summer of 2022, MAS hosted six MSRP interns in five research groups across the Media Lab.

- Camila Acevedo Carrillo, City Science
- Annie Chen, Lifelong Kindergarten
- Michael Anoruo, Space Enabled
- Kebing Bi, Conformable Decoders
- Lina Henriquez, Personal Robots
- Nicole Attram, Biomechatronics
- Mauricio Martinez-Elizondo, Space Enabled

Open House
Offered in a virtual format again in October 2022, the MAS Open House allowed prospective students to learn more about the Media Lab, meet with faculty and graduate students, and determine if this is the best program for them. Overall, 350 individuals registered to attend from around the world.

SOS (Students Offering Support)
SOS pairs applicants with current students who provide feedback on either the applicant’s statement of purpose or portfolio. Because MAS research groups vary so much in the skills and experience they are looking for, this individualized attention goes a long way in helping applicants understand what to highlight in their applications and whether indeed this is the best program for them. This year, 31 applicants were paired with 13 volunteers from nine different research groups. Of the SOS participants, one was admitted to the MAS program.
Recruitment Success

In Fall 2023, MAS welcomed 25 new masters (26 were admitted, 1 deferred for medical reasons) and 18 new PhD students. MAS admitted 13 women and 13 men to the master’s program; 10 women and 8 men to the PhD Program. Women outnumber men in the this cohort of students. The percentage of URM students for the master’s cohort is 8 percent while the PhD cohort is comprised of 22 percent URM (underrepresented minority) students.

Masters Enrollment (2011-2023)

Masters Enrollment by Gender

Masters Enrollment by Race/Ethnicity
Secondary Advisor Program

Following a recommendation from the Student-Advisor Working Group, MAS piloted a secondary advisor program for first-year master’s students in Fall 2020. Secondary Advisors serve as an extra resource for students to talk about classes, progress to degree completion, explore research passions, and investigate career trajectory. Based on positive feedback from the participating students, MAS expanded the program in AY22 to include interested doctoral students, and continued to run the program in AY23.

Graduate Student Wellness Workshops

This ongoing series is focused on providing resources to help support graduate students’ mental health and wellness. The workshops offered 2022–2023 were:

- Caring For Your Wellbeing as a Graduate Student
  Presenter: Liz Guttenberg, Assistant Dean, Office of Graduate Education

- Let’s Talk About Stress
  Presenter: Xiaolu Hsi, PhD, Clinical Psychologist, Student Mental Health + Counseling

- Partner Abuse in LGBTQ+ communities

- Workshop facilitated by members of community organization, The Network/ La Red (TNLR)

- Finish Strong: End-of-Semester Hacks
  Presenter: Zan Barry, PsyD, Program Manager, Community Wellness

- Rally, Reflect, and Regroup
  Presenter: Xiaolu Hsi, PhD, Clinical Psychologist, Student Mental Health + Counseling

Lunch + Learn: Best Practices for Supporting Graduate Students

This ongoing series connects MAS and Media Lab faculty and staff to MIT resources and provides best practices for supporting our graduate student population. This year’s Lunch + Learn series connected us to:

- Office of Graduate Education + Division of Student Life
- Disabilities and Access Services
- Mental Health + Counseling

Design Critiques

Based on feedback received from the Research Working Group, MAS facilitated Design Critiques hosted by Adjunct Associate Professor Zach Lieberman. The series was organized to help facilitate critical responses to work — responses that build up
rather than tear down — and aimed to offer the maker new insights and motivations for their work. The focus of this past year was to train student facilitators to assist in organizing and running these critiques.

**Student Research Seminar Series**

MAS students expressed interest in hearing more about their colleagues' research to facilitate learning and collaboration between research groups. During the Spring 2023 semester, MAS hosted five student research seminars that showcased students from across the research groups. The seminar series was a success — attracting large numbers of students to excellently prepared presentations — and more students will have the opportunity to present during the upcoming academic year.

**Career and Professional Development Series**

MAS offered career development and professional development opportunities:

- **Start with Talent, Finish with Strength: What You Bring to Your Future Organization** presented by Nicole Dumas, CEFL - Director, Advancement Talent, Boston College
- Dr. Mohammad Amiri joined the team as a short term lecturer, offering individual career and professional development consultations to MAS students. He also led two Professional Development (PD) workshops. These interactive workshops focused on: writing resumes, academic CVs, interviewing skills, and teaching/research statements.

**Community-Building Events:**

**Study Breaks**

In response to student feedback, MAS hosted monthly study breaks in the spring. These informal gatherings provided students an opportunity to take a break and socialize with each other.

**Crafting Events**

Based on the popularity of last year's events, MAS once again offered two crafting events. These events provided an outlet for community members to take a break from work, be creative, socialize, and meet new people outside of their lab groups. This year, MAS joined forces with the Media Lab, hosting our holiday craft bazaar as a part of the Media Lab Holiday Party. We also hosted a Valentine's Day DIY Card-Making Party in February.

**Random Acts of Kindness (RAK) Week**

As part of the Mind, Hand, Heart Initiative, Random Acts of Kindness (RAK) Week took place across MIT from March 13-17, 2023. MAS Diversity supplemented the Institute-wide events with our own RAK Week activities. MAS encouraged the community to shout out their friends, mentors, colleagues, anyone and everyone that made a difference in their time at the Media Lab. We received numerous shout outs which were shared on the big screen in our atrium at a community lunch featuring a swag table and board games. MAS also handed out adhesive cell phone wallets to all members of the Lab.

**Ice Cream Social**

To celebrate the end of the spring 2023 term, MAS held an Ice Cream Social for the entire Media Lab community. Over 175 people attended and enjoyed an ice cream bar from Rancatore's as well as board games and conversation.

**Family Fun Day**

We kicked off the summer with our popular MAS Family Fun Day celebration. This year’s event was co-sponsored by Media Lab Human Resources and featured a burger bar, an ice cream bar, two student DJs, face painting, balloon animals, and outdoor games. We also handed out insulated tote bags. Media Lab and MAS members were encouraged to bring their families and friends. Over 200 people attended to enjoy some time together and recharge on a summer day.

**Women Take The Reel Film Festival Screenings: “Neptune Frost” and “Sisters With Transistors”**

MAS once again partnered with the Program in Women’s and Gender Studies for the annual Women Take The Reel Film Festival (WTTR). This annual film festival features films directed, written and/or produced by women that explore
issues relating to gender, race, sexuality, class, and/or feminism. This year we hosted two film screenings to commemorate both Black History Month and Women's History Month. We celebrated Black History Month and kicked-off the WTTR film festival with a special screening of “Neptune Frost,” a celestial afro-futuristic, cyber-musical that offers a radically bold vision of power, exploitation, and love. The film screening of “Neptune Frost” was cosponsored by MIT ICEO, Black Graduate Student Association, LBGTQ+ Services, Literature, Comparative Media Studies, and Women's and Gender Studies. MIT Literature Professor Sandy Alexandre led the Q+A. To commemorate Women's History Month we screened “Sisters with Transistors,” the remarkable untold story of electronic music's female pioneers, composers who embraced machines and their liberating technologies to utterly transform how we produce and listen to music today. The film screening of “Sisters with Transistors” was cosponsored by MIT Music + Theater Arts and Women's and Gender Studies. The film was followed by a Q+A with MAS professor and electronic music enthusiast Joe Paradiso.

Faculty Panel
MAS once again hosted our second “Things I wish I Would Have Known as a Graduate Student: What Failure Taught Me” faculty panel. The panel was Moderated by Prof. and MAS Academic Head Tod Machover and featured three MAS faculty members: Deblina Sarkar, Ed Boyden, and Pattie Maes. The faculty were invited to share their stories of failure during their academic careers, as well as the difficult lessons they learned throughout their graduate and professional journeys. A lively discussion was augmented by a significant Q+A follow-up.

PRIDE Mixer
Each year Boston celebrates PRIDE in June. For the first time ever, MAS joined forces with MIT LGBTQ+ Services and hosted an Intercollegiate PRIDE Mixer. The mixer/networking event connected LGBTQ+ identified graduate students, staff, faculty and allies across various colleges (Berklee College of Music, Boston College, Boston University, Brandeis, Emerson, Harvard, MassArt, Northeastern, Simmons, Tufts, UMass Boston, and Wellesley) in the Boston/Cambridge community. This event was made possible by the co-sponsorship and generous contributions of MIT: Sloan DEI, School of Architecture and Planning (SA+P), Institute Community and Equity Office (ICEO), Women's and Gender Studies (WGS), Office of Graduate Education (OGE), and Human Resources (HR).
Diversity, Equity, and Belonging Roadmap:
The Diversity, Equity, and Belonging (DEB) Roadmap consists of 4 components that guide our work. The components are not sequential, but rather anchor our projects to ensure transparency and accountability:

<table>
<thead>
<tr>
<th>Knowledge Baseline</th>
<th>Establish a foundation across the Lab so that everyone understands the same concepts and what they mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Development</td>
<td>Individually-based exploration of knowledge baseline meant to shift how community members interact and reflect on their actions</td>
</tr>
<tr>
<td>Culture Audit</td>
<td>Assess Lab processes</td>
</tr>
<tr>
<td>Structural Change</td>
<td>Determine priorities and maintenance plan</td>
</tr>
</tbody>
</table>

Proactive Approaches to Staff Culture and Development Workshops
These past few years have continued to be very challenging for all of us. MAS maintains a concerted effort to address the mental health distresses brought about by the ongoing global pandemic and the complex challenges of current events. We once again hosted our Lunch and Learn series: “Best Practices for Supporting Graduate Students.” Faculty and staff were invited to learn more about available campus resources and connect with offices that support students across the Institute. Representatives included staff from the Office of Graduate Education (OGE), Division of Student Life (DSL), Mental Health and Counseling, and Disabilities + Access Services.

Guided by the principles of the MIT Strategic Action Plan for Belonging, Achievement and Composition, the Program in Media, Arts and Sciences (MAS) is committed to improving lab culture and enhancing diversity, equity and inclusion within our lab spaces. At the beginning of the 2022–2023 academic year, MAS Academic Head Tod Machover gifted each of his colleagues a copy of Jessica Nordells’ newly released and bestselling book, The End of Bias: A Beginning. The author was then invited to MAS for a whirlwind two-day residency visit this fall. A former MIT undergraduate, Ms. Nordell shared her experiences, research, insights and solutions concerning implicit/unconscious bias at MIT and beyond.

In addition to an illuminating keynote address, Ms. Nordell toured various lab spaces, and met separately with MAS students, members of the DEI Working Group, and faculty. These community conversations were incredibly productive and hopeful, providing great insight to different strategies for: inclusion and engagement; improving lab culture; better supporting
students; and increasing diversity at the lab. We look forward to continuing these important conversations and further exploring the different strategies suggested by Ms. Nordell’s experience and extensive research: identifying and uprooting alienating/exclusionary behaviors, languages, and practices; strengthening and deepening our commitment to higher values by establishing mutually respectful + nurturing relationships; and finally developing our own humble awareness of our capacity for bias at both the individual and collective level. Ms. Nordell encouraged us to deeply consider that by losing our biased lenses: “We might become human, we might become trustworthy, we might all become free.”

Following last year’s Cultural Values Mapping Workshop for faculty, two MAS staff participated in an intensive training with the Center for Cultural Intelligence (CQ). They each received certification to facilitate CQ Unconscious Bias workshops.

Additionally, MAS partnered with Media Lab Human Resources to offer two separate Unconscious Bias workshops for Media Lab staff. The learning outcomes included: understanding why bias matters; recognizing sources of explicit and implicit/unconscious bias; identifying systemic bias in our organizations/institution; and learning how understanding cultural differences can help pave pathways for better communication and collaboration in work spaces.

**Undergraduate Engagement**

The Undergraduate Research Opportunities Program (UROP) continued to represent the largest undergraduate presence in MAS and the Media Lab. The program offers hands-on research experiences across all the research groups within MAS including the Media Lab initiatives. In AY 2022-2023 a total of 360 approved UROPs from across the Institute participated in a wide variety of UROP research projects at the Media Lab, and many students pursued their undergraduate theses and advanced undergraduate projects under MAS faculty supervision.
A selection of honors and awards
Director Newman was recognized with two honorary doctorate degrees in FY23: one from the Royal College of Art in London, UK, and the other from the University of Minho, Portugal.

Professor Rosalind Picard, of Affective Computing, received the “Lombardia è Ricerca” International Prize, awarded by the Italian region of Lombardy. The prize recognizes outstanding work in computer science for safety, wellness, and sustainable growth in 2022.

Professor Rosalind Picard, of Affective Computing, was featured in Forbes for “50 Over 50: Entrepreneurs” and was the Tanner Lecturer on AI and Human Values at Oxford University in 2022.

Professor Rosalind Picard, of Affective Computing, received an Honorary Doctorate of Science from Tulane University, and the Joanna Mockler Leadership Award in Science, Technology, Environment, and Health in 2022.

Matt Groh, of Affective Computing, received the MIT Prize for Open Data for his Fitzpatrick 17k paper and dataset.

Francesca Riccio-Ackerman, of Biomechatronics, and Pedro Reynolds-Cuéllar, of Space Enabled, were MIT Morningside Academy for Design’s inaugural fellows in 2023.

Paris Myers, of Biomechatronics, has been selected for the National Science Foundation Graduate Research Fellowship Program (NSF-GRFP) as a Fellow in the field of mechanical engineering in 2023.

Praneeth Vepakomma and Professor Ramesh Raskar, of Camera Culture, collaborated with Professor Eugene Soltes, Matt Galvin (previously with AB inBev), and Vincent Walden (Kona AI) to create their project: Integrity Distributed receives the Financial Times Innovation Award in the Digital Innovation category in 2023.

Professor Neil Gershenfeld, of the Center for Bits and Atoms, was elected to the National Academy of Engineering, and received the Irwin Sizer Award for the Most Significant Improvement to MIT Education from the Graduate Student Council, in recognition of the impact his iconic course, “How to Make (almost) Anything,” has had on the Institute. MIT News also recognized Professor Gershenfeld’s influence with a feature on the Fab Lab Network, which was born from a collaboration between Professor Gershenfeld and the late civil rights activist Mel King.

Maggie Hughes, of Center for Constructive Communication, and Tara Boroushaki, of Signal Kinetics, received Microsoft Research PhD Fellowships in 2023.
Professor Deb Roy, of **Center for Constructive Communication**, was named to the board of the **Knight First Amendment Institute** at Columbia University.

Belén Saldías Fuentes, of **Constructive Communication**, received the **Graduate Women of Excellence Award** in 2023.

Naroa Coretti Sánchez, of **City Science**, was selected as one of **MIT Technology Review**'s “**Innovators Under 35: Europe**” in 2023. This recognition highlights her contributions to transforming urban mobility by creating more sustainable transport modes.

Professor Canan Dagdeviren, of **Conformable Decoders**, received the **MIT Futures Founders Initiative $100K Runner Up Prize** and the **Faculty Ambassador Award** for her commitment to enhancing the experience of undergraduate and/or graduate students at MIT in a way that transcends the boundaries of the classroom in 2022.

Sara Fernandez, of **Conformable Decoders**, received the **MIT Unsung Hero Award** and **Outstanding UROP Award** in 2022.

Professor Canan Dagdeviren, of **Conformable Decoders**, was featured by the **Advanced Science News Rising Stars** program, which highlights the work of early career researchers and celebrates the diversity of the international scientific community, and received the **MIT Bose Grant** in 2023.

Lara Ozkan and Canan Dagdeviren

Lara Ozkan, an undergraduate researcher in the **Conformable Decoders** group, was selected as a **Social and Ethical Responsibilities of Computing (SERC)** Scholar by the MIT Schwarzman College of Computing and as a member of MIT's current **Laureates and Leaders** Cohort.

Wenya Du, of **Conformable Decoders**, received the **National Science Foundation Graduate Research Fellowship Program (NSF GRFP)** award.

Professor Pattie Maes, of **Fluid Interfaces**, had her 500th peer-reviewed paper accepted and an honorary doctorate from Open Universiteit in the Netherlands for her research in the field of artificial intelligence and her outstanding contributions to science and society.

Tomás Vega, a **Fluid Interfaces** alum, and his Augmental co-founder Corten Singer were recognized in the Social Impact category of the **Forbes 30 Under 30** listings for 2023.

Ruby Liu, of **Fluid Interfaces**, and Cathy Fang, of **Tangible Media**, received the **Accenture Fellowship** in 2023-2023.
Guillermo Bernal

Alum Guillermo Bernal, of Fluid Interfaces, is among the recipients of the first seed grants from the MIT-Pillar AI Collective. Guillermo’s Fascia system, which began as a Media Lab research project, is a sleep therapeutic platform intended to allow researchers and specialists to conduct sleep studies remotely, while the patient rests comfortably at home in 2023.

Professor Zach Lieberman, of Future Sketches, was inducted into the Alliance Graphique Internationale (AGI), a member-based association of leading professionals from across the globe who are working in the field of graphic design in 2023.

Jaleesa Trapp, of Lifelong Kindergarten, was the graduate student speaker at MIT’s 49th annual Celebration of the Life and Legacy of Dr. Martin Luther King Jr.

Jaleesa Trapp, of Lifelong Kindergarten, Manaswi Mishra, of Opera of the Future, and Caitlin Morris, of Fluid Interfaces, have been named as the LEGO Papert Fellows in 2023.

Mitchel Resnick, of Lifelong Kindergarten, was selected to deliver a Distinguished Lecture at National Science Foundation headquarters.

Cecilé Sadler, of Lifelong Kindergarten, received the Priscilla King Gray Award for Public Service in 2023.

Professor Deblina Sarkar, of Nano-Cybernetic Biotrek, has been recognized as an innovative early career engineer by the National Academy of Engineering, and invited to present at the Grainger Foundation Frontiers of Engineering 2022 Symposium.

Professor Deblina Sarkar, of Nano-Cybernetic Biotrek, received the NIH Director’s New Innovator Award (DP2). This award is a part of the NIH Common Fund’s High-Risk, High-Reward Research program and supports exceptionally creative early career scientists pursuing unusually innovative research. Additionally, the NIH awarded Professor Sarkar’s proposal a perfect impact score of “10,” the highest score possible.
Sarah Cao, of Nano-Cybernetic Biotrek, received the Outstanding UROP Award.

Professor Debliina Sarkar, of Nano-Cybernetic Biotrek, has been named to the SN 10: Scientists to Watch list by Science News. This annual list recognizes 10 young scientists whose work has already made significant contributions to their field in 2023.

Baju Joy, of Nano-Cybernetic Biotrek, received the Whitaker Health Sciences Fund Fellowship.

Shivam Kajale, of Nano-Cybernetic Biotrek, created awareness about the environmental effect of AI through his TEDx talk and alongside Deblina Sarkar was awarded Designing for Sustainability funding through MIT Morningside Academy of Design.

Benoit Desboilles, of Nano-Cybernetic Biotrek, received an MIT Excellence Award.

Marta Aoragjo, of Nano-Cybernetic Biotrek, received the Novartis Innovation Fellowship.

The Nano-Cybernetic Biotrek group's invention of the Cell Rover received an editor's highlight and was featured by Nature Portfolio and by the National Academy of Engineering in 2023.

The Nano-Cybernetic Biotrek group has received an NIH BRAIN Initiative Grant that supports new concepts and early-stage research for unique and innovative technologies for recording and/or modulation of the brain in 2023.

Professor Tod Machover, of Opera of the Future, was commissioned to create a concert featuring 3 new compositions: VocaGammified, Breathing Together, and Brain Opera 2.0. The concert celebrated the opening of the new MIT Museum in October 2022.

Professor Tod Machover, of Opera of the Future, was commissioned to compose a new opera, Overstory Overture, by Sejong Soloists for the New York's Lincoln Center and Seoul (Korea) Arts Center in March 2023. The premiere was followed by a broadcast and live stream on ARTE Korean TV.

Jess Shand and Manuel Cherep, of Opera of the Future, received a significant grant from the Council for the Arts at MIT to support research in musical performance and advanced biometrics.

Kimy Lecamwasam, of Opera of the Future, developed a novel method of personalized, during-concert data collection that was tested throughout Spring 2023 at Carnegie Hall in New York to assess the success with audiences of an innovative series of “Concerts for Wellbeing.”
Alaa Algargoosh, Opera of the Future, was invited to be a distinguished speaker at the International Day of Women in Science hosted by the Artificial Intelligence and Data Analytics Lab at Prince Sultan University, and received an honorable mention and an audience choice award at the MIT Reb search Slam Competition in 2023.

Tejal Reddy, Randi Williams, and Professor Cynthia Breazeal, of Personal Robots, received the Best Paper Award at the IEEE Visual Languages and Human-Centered Computing (VL/HCC) conference in Rome for “LevelUp - Automatic Assessment of Block-Based Machine Learning Projects for AI Education” in 2022.

Safinah Arshad Ali, Nisha Devasia, and Professor Cynthia Breazeal, of Personal Robots, received an honorable mention at the ACM conference on Creativity + Cognition for their paper “Escape!Bot: Social Robots as Creative Problem-Solving Partners” in 2022.

Raechel Walker, Olivia Dias, Zeynep Yalcin, Lina Henriquez, Sophia Brady, and Professor Cynthia Breazeal, of Personal Robots, received the MIT Prize for Open Data for their work on Data Activism Curriculum in 2022.

Anastasia Ostrowski, of Personal Robots, received an inaugural Amazon Fellowship awarded by the Science Hub, hosted at the MIT Schwarzman College of Computing in 2023.

Jocelyn Shen, of Personal Robots, has been named a finalist for the National Center for Women and Information Technology (NCWIT) Aspirations in Computing Collegiate Award in 2023.

Professor Joseph Paradiso and researchers Patrick Chwalek and David Ramsay, of Responsive Environments, received an IMWUT Distinguished Paper Award for their paper “Captivates: A Smart Eyeglass Platform for Across-Context Physiological Measurement” in 2022.

Ali Shtarbanov and Juliana Cherston, of Responsive Environments, were each top prize winners for the Tech Briefs: Create the Future Design Contest in 2022. Ali Shtarbanov was awarded the Grand Prize for FlowIO, a fully integrated, miniature pneumatic development platform, and Juliana Cherston was awarded first place in the Aerospace and Defense category, for The Well-Dressed Spacecraft: Electronic Textile Enhanced Thermal Blanket as Debris (and Cosmic Dust) Sensor.

Ali Shtarbanov and Irmandy Wicaksono, of Responsive Environments, were honored in the 2022 Core77 Design Awards.

Professor Joseph Paradiso and Cedric Honnet, of Responsive Environments, are part of a research team that has been awarded a seed grant from the MIT Portugal Program.
Professor Fadel Adib, John Rademacher, Waleed Akbar, Sayed Saad Afzal, Osvy Rodriguez, Nazish Naeem, Purui Wang, Mario Doumet, Unsoo Ha, Reza Ghaffarivardavagh, of Signal Kinetics, received the ACM WUWNet Best Demo Award for a live demonstration of their battery-free wireless underwater camera, which was also selected as a Research Highlight by Nature Electronics in 2022.

Professor Fadel Adib, of Singal Kinetics, gave keynote talks for IEEE RFID 2023 (Seattle, WA), IoT 2022 (Delft, Netherlands), and received the ACM SIGMOBILE Test-of-Time Award for his collaboration with Dina Katabi for their 2013 paper, “See Through Walls with WiFi!”

Signal Kinetics researchers received the Best Paper Award and Best Paper Runner-Up at the IEEE RFID conference in Seattle, WA in 2023.


Pedro Reynolds Cuéllar, of Space Enabled, received the MIT Prize for Open Data for his work: Retos in 2022.

Neil S. Gaikwad, of Space Enabled, received an Honorable Mention from the inaugural MIT Prize for Open Data for his work: Data-driven Humanitarian Mapping and Policymaking.

Jack Reid, of Space Enabled, was selected as a Future Space Leader for 2022.

Professor Danielle Wood, of Space Enabled, was inducted as a full member of the International Academy of Astronautics (IAA) during the International Astronautical Congress in Paris in 2022. Professor Wood is recognized in the Engineering Science section of the IAA for her work in developing societal applications of remote sensing, systems approaches to supporting the space programs of emerging nations, and innovation in small satellite technology.

Professor Danielle Wood, of Space Enabled, leads MIT’s new undergraduate major in African and African Diaspora Studies (AADS), as highlighted in MIT News, received the MIT Black Women's Alliance Ayida Award, the MIT Open Learning Teaching with Digital Technology Award, and spoke at the United Nations Committee on the Peaceful Uses of Outer Space.

Professor Moriba Jah, a Space Enabled affiliate, was selected as a 2022 MLK Professor, named a MacArthur Fellow for the class of 2022, and was recently elected to the Royal Society of Edinburgh (RSE), Scotland’s National Academy in 2023.

Belén Saldías Fuentes, a PhD candidate in the MIT Center for Constructive Communication, Ufuoma Ovienmhada, a PhD candidate in the Space Enabled research group, have been honored with Graduate Women of Excellence Awards.

Prathima Muniyappa and Alexandra Rieger, Prathima Muniyappa, of Space Enabled, and Alexandra Rieger, of Opera of the Future, were named to the new cohort of MIT MAD Design Fellows in 2024.
Professor Hiroshi Ishii, of **Tangible Media**, received the ACM Fellow Award in 2023.

Cathy Fang, of **Tangible Media**, worked on three projects featured in *Fast Company's Innovation by Design Awards* and received Honorable Mentions in the Students category.

Wedyan Babatain, of **Tangible Media**, was selected as one of *MIT Technology Review*’s “Innovators Under 35 in the Middle East and North Africa (MENA)” for 2022. A Rising Star in ECCS, UT Austin, she received the Ibn Rushd Postdoctoral Fellowship. Dr. Babatain was recognized for her work on the development of a soft, multifunctional wearable platform using graphene and liquid metal-based electronics.

Yun Kyung Choi, of **Tangible Media**, received the Lego Papert Fellowship and the HASS Award for the TeleTangibles Research Proposal in 2023.

Jack Forman, of **Tangible Media**, received Special Recognition for Outstanding Review in UIST and IMWUT in 2023.

Sarah Nicita, of **Tangible Media**, received the MDes Research and Development Award in 2023.

Kris Dorsey, an MLK Visiting Associate Professor hosted by the **Tangible Media** group this past academic year, recently won the Emerging Leader Abie Award for her contributions to technology in 2023.

**Fast Company’s 2022 Innovation by Design Awards:**

- **3DKnITS** (Irmandy Wicaksono and Prof. Joseph Paradiso; **Responsive Environments**). *Finalist: Students; Honorable Mention: Experimental*
- **OmniFiber** (Ozgun Kilic Afsar, Hila Mor, Ken Nakagaki, Jack Forman, Ali Shtarbanov, Prof. Hiroshi Ishii, Aishni Parab, Dr. Seunghee Jeong, Prof. Klas Hjort, and Prof. Kristina Hook; **Tangible Media, Responsive Environments**). Harvard Wyss Institute, KTH Royal Institute of Technology, and Uppsala University). *Finalist: Materials*
- **Anicka Yi: In Love With the World** (Sitara Systems. *Opera of the Future* alum Noah Feehan designed the technical side of this exhibition, and hired MIT EECS alum Nathan Lachenmyer to design the unique artificial life behaviors for each aerobe). **Finalist: Experience; Honorable Mention: Experimental**
- **Bartleby** (Citizens and Technology (CAT) Lab at Cornell: the CAT Lab was founded by **Civic Media** alum J. Nathan Matias; MIT CSAIL PhD student Jonathan Zong, a visiting researcher at CAT Lab, is the corresponding author of this work). **Finalist: Students**
- **Morphace** (Morphing Matter Lab, Carnegie Mellon University (CMU): the Morphing Matter Lab was founded by **Tangible Media** alum Lining Yao; Prof. Yao and **Tangible Media** student Cathy Fang, then a student at CMU, were among the authors of this work, with Sijia Wang, Yiyao Yang, Kexin Lu, Maria Vlachostergiou). **Honorable Mention: Students**
- **ElectriPop** (FIGLAB, Carnegie Mellon University (CMU): the research team included Cathy Fang (**Tangible Media**), Jianzhe Gu, Prof. Lining Yao, and Prof. Chris Harrison). **Honorable Mention: Students**
- **ControllerPose/Full-Body VR Controllers** (FIGLAB, Carnegie Mellon University (CMU): the research team included Karan Ahuja, Vivian Shen, Cathy Fang (**Tangible Media**), Nathan Riopelle, Andy Kong and Prof. Chris Harrison). **Honorable Mention: Students**