MIT Media Lab

Fiscal year 2021 at the Media Lab opened with a search for a new director, which concluded on December 22, 2020 with the announcement that Professor Dava Newman had accepted the role, effective July 1, 2021.

Much of the year was shaped by the ongoing Covid-19 pandemic, which influenced our researchers' work, our approach to events, and the way we interacted with each other and with the world.

Several successful projects launched in initial response to the pandemic continued into FY2021:

- Open Standard Industries, Inc.—which grew out of a collaboration between alumnus Matt Carney (Biomechatronics group) and a range of collaborators—shipped the OSR-Model 1 Reusable Face Mask, an open standard respirator, N95 alternative face mask.

- The Pandemic Response Supermind Activation—a collaboration between the MIT Center for Collective Intelligence, member company MilliporeSigma, and the Community Biotechnology Initiative—issued its final report addressing the challenges of pandemic resilience and launched an ongoing Catalyst Conversation series.

- Professor Ramesh Raskar led a series of public events and conversations around privacy-preserving technologies for contact tracing and verification of vaccination status.

Impactful new projects related to the pandemic also began in FY2021, including:

- The Social Machines research group collaborated with the Task Force for Global Health, nonprofit spinoff Cortico, New America, and the Institute for Local Innovations to pilot an Atlanta-based Covid-19 health campaign (co-designed with local influencers) as an application of the group's HealthPULSE project.

- Using computational models of protein interactions, researchers in the Molecular Machines group and the Center for Bits and Atoms designed a peptide that binds to coronavirus proteins and shuttles them into a cellular pathway that breaks the proteins down.

- Alum Dhaval Adjodah, Alex "Sandy" Pentland, research scientist Karthik Dinakar, and collaborators investigated mask mandates, adherence, and attitudes, controlling for vaccination. They found them beneficial across the board for reducing adverse Covid-19 outcomes. They made the code and data available on GitHub, so others can build on this important public health contribution.

- As part of its long-standing collaboration with the Andorra Innovation Hub, the City Science research group analyzed mobility patterns and the spread of Covid-19 in Andorra. Their findings support policies that encourage people to remain in their home communities and discourage events that draw high-density crowds.

As detailed in the events section below, our research and operational groups held creative, online events for the public and for our member companies and experimented with different event formats throughout the year. Of note, our member relations team developed a "Media Lab Focus" series for member companies. Occurring once every two months, each event includes a series of research discussions, workshops, and a downloadable report highlighting Media Lab research focused on the current theme (e.g., Technology and Social Equity, Telecreativity, and New Health). Additionally, the Media Lab faculty launched a new distinguished speaker series, Media Lab Perspectives, which features world-renowned authors, researchers, artists, and innovators and explores current topics at the intersection of technology and people. Presented virtually in FY2021, the Perspectives series will move to a hybrid format in the next fiscal year.

Despite the difficulties imposed by the Covid-19 pandemic, the Media Lab was able to complete notable collaborations with member companies this year:

- As part of an academic research collaboration, Hyundai Motor Company unveiled a one-of-a-kind, miniature electronic vehicle that uses Emotion Adaptive Vehicle Control (EAVC) technology to support young patients at the SJD Barcelona Children's Hospital in Spain.

- A paper in *Science* described the results of a collaboration between Kioxia Corporation and the Synthetic Neurobiology group, and involving both MIT and Harvard scientists, all conducted while members of Kioxia and Boyden's group were working together at the Media Lab. It presents a novel way to locate and sequence RNA within tissue samples—potentially opening avenues for researchers to learn more about gene expression in cells.

Two new, MIT-wide initiatives based at the Media Lab were announced:

- Directed by Deb Roy, the MIT Center for Constructive Communication is an interdisciplinary, cross-campus effort to better understand social and mass media ecosystems and design new tools and networks to help bridge social, cultural, and political divides.

- Responsible AI for Social Empowerment and Education (RAISE) is a cross-disciplinary research initiative that aims to promote the understanding and use of AI across all segments of society. As a collaboration between the Media Lab, MIT Schwarzman College of Computing, and MIT Open Learning, RAISE is co-directed by Cynthia Breazeal, Hal Abelson, Eric Klopfer, and Hae Won Park. It draws additional participation from dozens of faculty, staff, and students across the Institute.

Several members of the Media Lab community testified in congressional hearings:

- Ramesh Raskar spoke to the House Financial Services Committee's Congressional Task Force on Artificial Intelligence (AI) about "Exposure Notification and Contact Tracing: How AI Helps Localities Reopen Safely and Researchers Find a Cure." (July 8, 2020)

- Alumnus Leonardo Bonanni (Tangible Media group), founder of spinoff Sourcemap, testified before the United States Senate Committee on Finance in a hearing on "Fighting Forced Labor: Closing Loopholes and Improving Customs Enforcement to Mandate Clean Supply Chains and Protect Workers." (March 18, 2021)

- Neha Narula, director of the MIT Digital Currency Initiative, testified before the United States Senate Committee on Banking, Housing, and Urban Affairs Subcommittee on Economic Policy in a hearing on "Building A Stronger Financial System: Opportunities of a Central Bank Digital Currency." (June 9, 2021)

The Media Lab continued change management work to increase transparency and co-creation, which was initiated in the fall of 2019, led by the Executive Committee and five community working groups, and coordinated by a new operational group called Communications & Special Projects. More than 50 Media Lab staff, students, and faculty members were involved in crafting, socializing, publishing, and implementing 37 approved recommendations to improve the Media Lab's culture, funding, governance, research, and student-advisor relationships in 2021. Twenty-five of these recommendations have been successfully implemented in less than a year, with six remaining in planning and five placed on hold for consideration by the incoming Media Lab director. Some highlights of both the process and outputs of this culture change management include:

- A successful pilot of a Secondary Advisor program in the Program for Media Arts and Sciences.

- The adoption, implementation, and communication of a Media Lab funder vetting process that goes beyond the funder vetting criteria set by MIT Central.

- An early set of community-generated Media Lab values, arrived at through more than 10 reflective structured dialogues facilitated by students and staff.

- A centralized and regularly updated dashboard available for the Media Lab community and member companies to track progress on each recommendation and get updates from individuals directly responsible for their implementation.

- The inclusive co-design of new research intersections among and across the research groups, called the "ML Charrettes," which demonstrate a mutual respect between faculty, staff, and students for the power of their ideas.

As the community was activating a significant internal culture shift during the Covid-19 pandemic, the Media Lab grappled with questions of racism, equity, and social change. In response to a community call for both public commitment to anti-racist research and organizational response to the Black Lives Matter movement, the Executive Committee publicly committed to weaving antiracism into the Media Lab's culture and community. Using the community co-creation and progress tracking tools of the working groups, CSP created a dashboard to track progress on the Lab's antiracist commitments. Community updates are regularly provided.

Many of these efforts were detailed in a September 2020 story in *MIT News*, titled "MIT Media Lab charts a course for the future."

Finally, several research groups and initiatives have concluded this year, including the Center for Civic Media, the Mediated Matter research group, the Open Ocean Initiative, the Director's Fellows Program, and the Ethics Initiative. The Synthetic Neurobiology group moved to the McGovern Institute for Brain Research; Professor Edward Boyden retained his appointment with the Program in Media Arts and Sciences.

A Sampling of Media Lab Research

Advancing Neuroscience through Wearable Devices—In a new paper published in *Neuron*, Kristy Johnson and Rosalind Picard broadly discuss wearable technology and provide specific examples of activity patterns from electrodermal sensors found during sleep, stress, and seizures.

Agonist-antagonist myoneural interface (AMI) amputation research—In new studies, researchers from the Biomechatronics group and collaborators reported that the neural interfacing architecture implemented by the AMI amputation method resulted in greater muscle coordination and control, more precise motions, and higher phantom limb sensation with decreased phantom limb pain compared to non-AMI patients (published in *Proceedings of the National Academy of Sciences*). They further reported that the AMI amputation procedure helps preserve sensory feedback and motor control (published in *Science Translational Medicine*).

Analysis of the Microgravity Research Ecosystem and Market Drivers of Accessibility—In *New Space*, Space Enabled researcher Christine Joseph and group head Danielle Wood describe paths for more people to participate in space research using microgravity.

Bitcoin Software and Security Effort—The Digital Currency Initiative launched a four-year Bitcoin software and security effort with leaders in the industry.

Conformable Facial Code Extrapolation Sensor—With collaborators, researchers in the Conformable Decoders group have designed a lightweight, wearable sensor that could be used to help patients with amyotrophic lateral sclerosis communicate. This work has been published in *Nature Biomedical Engineering* and *Smart Materials and Structures*.

Core commitments for field trials of gene drive organisms—In *Science*, more than three dozen co-authors, including Sculpting Evolution group director Kevin Esvelt, propose principles to safeguard the ecologically and/or genetically confined field trials of gene drive organisms. The co-authors pledge to apply these commitments to their own practices.

DefeXtiles: 3D printing quasi-woven textiles via underextrusion—Tangible Media group researcher Jack Forman developed a method of 3D printing "quasi-textiles," flexible, stretchy materials with characteristics of woven fabric, produced with a basic, unmodified 3D printer. He began experimenting with the technique in Neil Gershenfeld's course MAS.863 How to Make (Almost) Anything.

Detect Fakes—Researchers in the Affective Computing and Viral Communications research groups developed a series of both real videos and deepfakes, videos manipulated by neural networks, of the two most recent US presidents, with a goal to "prebunk" deepfakes by revealing them as a dataset, not just a single anecdote.

Dormio: A targeted dream incubation device—In *Consciousness and Cognition*, researchers from the Fluid Interfaces group introduce the Targeted Dream Incubation method, which, in conjunction with a wearable device, allows for controlled experimentation with dreams by repeating targeted information at sleep onset, enabling incorporation of this information into dream content.

Galea—An open-source tool developed in collaboration with OpenBCI and based on PhysioHMD, an earlier Media Lab project, to help researchers combine multi-modal biometrics with mixed reality.

HERMITS: "Mechanical Shells" for Robotic Tangible UIs—Developed by Tangible Media researchers and group head Ken Nakagaki, Joao Wilbert, and Hiroshi Ishii, with Fluid Interfaces researcher Joanne Leong and Undergraduate Research Opportunity Program student Jordan L. Tappa—HERMITS is a hermit crab-inspired modular system that uses mechanical shells to make robotic tangible interfaces more functional, expressive, and interactive. Two papers related to this work were published in *Proceedings of the 33rd Annual ACM Symposium on User Interface Software and Technology (UIST '20)* and *UIST '20 Adjunct: Adjunct Publication of the 33rd Annual ACM Symposium on User Interface Software and Technology*.

In situ genome sequencing resolves DNA sequence and structure in intact biological samples—In *Science*, researchers from the Synthetic Neurobiology group and collaborators describe a method of integrating DNA sequencing technology with microscopy to pinpoint exactly where specific DNA sequences are located inside intact cells.

MIT Space Policy Compendium—Led by Dava Newman with co-authors including Ariel Ekblaw and Danielle Wood, this report provides policy Summaries and Recommendations supported by full-length research papers and is designed to help inform the Biden Administration in the development of a national space policy agenda that ensures a safe orbital environment, promotes broader accessibility and diversity in space research and exploration, and leverages space technology to address critical issues on Earth.

Participatory Design for Digital Transformation of Manufacturing Enterprises—In a working paper for MIT Work of the Future, Personal Robots group researcher Anastasia K. Ostrowski and collaborators explore ways of introducing human-centered methods and technology to the digital transformation of manufacturing enterprises through participatory design.

Self-Reconfigurable Micro-Implants—MIT researchers from the Signal Kinetics group at the Media Lab and the Energy-Efficient Circuits and Systems Group present μmedIC, a new technology for wireless and battery-less fully integrated micro-implants that power up by harvesting energy from wireless signals and communicate at net-zero power. These micro-implants are intelligent and can reprogram themselves inside the body. This work was presented at the 26th Annual International Conference on Mobile Computing and Networking (MobiCom '20).

Tangible Swarm—Researchers in the City Science research group developed a tool to display relevant information about a robotics system (e.g., multi-robot, swarm, etc.) in real time while the system is physically conducting its mission.

Who gets credit for AI-generated art?—In *iScience*, researchers from the Media Lab and the Sloan School of Management consider who receives credit for AI-generated art. They find that differences in the perception of AI anthropomorphicity are associated with different allocations of responsibility to the AI system and credit to different stakeholders involved in art production; they additionally show that perceptions of AI anthropomorphicity can be manipulated by changing the language used to talk about AI—as a tool versus an agent.

A Selection of Media Lab Events

Open Ocean Seminars—The Open Ocean Initiative moved its seminar series online and hosted a wide range of scientists, journalists, policymakers, and other guests throughout the year to discuss access and equity in ocean science and recreation. (April 20–December 7)

Serving Society with Space Data—Co-hosted by the Space Enabled research group and the Secure World Foundation, this virtual series aimed to engage a multi-sector audience in discussions on how space technologies and geospatial applications contribute to better outcomes in critical fields around the world, such as energy, food security, poverty, and governance. (June 24–September 16)

NanoBio Seminar Series—Hosted by the Nano-Cybernetic Biotrek research group, this lecture series was open to the MIT community and to the Media Lab's member companies. (September 2–April 21)

Black Mobility and Safety Seminar—As part of his two-semester Black Mobility and Safety course, Ekene Ijeoma co-hosted a public seminar series with the Art, Culture, and Technology program at MIT around living while Black in the United States, inviting artists, sociologists, journalists, authors, and others to discuss topics such as walking while Black, breathing while Black, birthing while Black, working while Black, voting while Black, and Black progress. (September 8–April 13)

Smart Oceans 2020—Sponsored by the National Science Foundation (NSF) and organized by the Media Lab and Woods Hole Oceanographic Institution, this conference brought together ocean researchers and practitioners with computer scientists, engineers, and stakeholders from industry, foundations and public policy to highlight the biggest challenges facing the ocean. Together, they brainstormed the next major innovations in ocean science and technology. (October 5–9)

Virtual City Science Summit: The Power of Without—The City Science Summit, hosted virtually by the University of Guadalajara, Mexico, livestreamed the Power of Without—strategies for a future without top down and increasingly obsolete urban systems and with lightweight, distributed, autonomous systems. (October 7)

MIT IoT Seminar Series—Co-hosted by the Signal Kinetics research group and featuring experts from academia and industry presenting their latest work and their vision for the future of the Internet of Things. (October 13–May 25)

Big Picture Sessions—As part of our fall event for member companies, the Media Lab hosted three public-facing conversations around timely, urgent topics—Resilience Across Scales, Equitable Technology, and Radical Sustainability. (October 27–29)

Festival of Learning 2021—The 2021 Festival of Learning (FoL), an annual celebration of the playful, spontaneous, and adventurous spirit of the Media Lab, took place online but still created a sense of community and creativity. "The Festival of Learning is always a great opportunity to remember that we are a community of hobbyists who exist outside our official job titles," said one attendee. "This year's FoL provided the spontaneous interaction that I've missed after a year of scheduled Zoom calls." (February 12)

Virtual Beyond the Cradle: Envisioning a New Space Age—The annual Beyond the Cradle event, hosted by the Space Exploration Initiative during MIT Space Week, brough scientists, engineers, artists, designers, and leaders of the space industry together to envision and contribute to futures in space. (April 15)

Feminist Future(s)—A monthlong hackathon and community event series organized by Lifelong Kindergarten PhD student Alexis Hope, Media Lab alumna and current MIT Department of Urban Studies and Planning professor Catherine D'Ignazio, and collaborators. In teams mentored by community organizations, participants designed interventions for four topic areas: reproductive justice, the care economy, prison abolition, and environmental justice. The hackathon also featured a public lecture series. (May 3–30)

What do creative coding toolkits of the future look like?—Hosted by the Future Sketches research group, this series of public talks invited four inspiring creators who are pushing the boundaries of both art making and tool making to discuss their work and their use of artist-built toolkits. (May 12–June 2)

Inflection PoinT—After a challenging year and a half, we invited students, staff, faculty, and members to help us create a Lab experience for and by the community. Unlike anything the Lab has ever done before, this was an entirely new, student-focused and student-organized event to help the Media Lab community connect and learn. (June 8–10)

A Selection of Talks, Exhibits, and Performances

Design Justice: A talk and discussion with Sasha Costanza-Chock, Catherine d'Ignazio, and Jaleesa Trapp—Tod Machover hosted Sasha Costanza-Chock for a discussion about their book *Design Justice*, followed by a dialogue with alumna, with Catherine d'Ignazio, professor in Department of Urban Studies and Planning, and with Jaleesa Trapp, Lifelong Kindergarten researcher. (August 12)

Mass STEM Week—Cynthia Breazeal delivered a keynote address as part of the third annual STEM Week Kick Off event co-hosted by the STEM Advisory Council, MIT, and the Massachusetts Science and Engineering Fair. (October 19)

Wearable AI and the future of human augmentation—Fluid Interfaces researcher Pat Pataranutaporn spoke at AI for Good, organized by the International Telecommunication Union and dedicated to identifying practical AI solutions to advance the United Nations' Sustainable Development Goals. (November 13)

The State of AI Ethics Panel—Danielle Wood and Katlyn Turner (Space Enabled) along with alumna and current MIT Department of Urban Studies and Planning professor Catherine D'Ignazio discussed their article "The Abuse and Misogynoir Playbook," which appeared in the January 2021 issue of the State of AI Ethics Report from the Montreal AI Ethics Institute. (March 24)

On Cities: Resilient Communities and Sustainability—For the Norman Foster Foundation's new masterclass series, Kent Larson considers the societal stressors caused by the Covid-19 pandemic and those that the world will face in a post-pandemic and rapidly urbanizing world, arguing for the importance of resilient cities at the local and community level. (April 21)

VocaGammified—Renée Fleming performed a new version of Tod Machover's *Gammified* for voice, string quartet, and electronics. The piece is based on Gamma frequency research from the Opera of the Future group as well as Ed Boyden's and Li-Huei Tsai's labs. (April 29)

Making Digital Tangible: The Battle Against the Pixel Empire—Hiroshi Ishii delivered a keynote address at ixDTW 2021. (May 14)

Future of Tech Commission Town Hall: A Public Discussion on Creating Safe, Healthy Online Spaces for All Americans—Deb Roy participated in a virtual town hall sponsored by the Mossavar-Rahmani Center for Business and Government (M-RCBG) and co-sponsored by the Shorenstein Center on Media, Politics and Public Policy and the Institute of Politics. (May 18)

With(in)—This multi-stage project from the City Science research group, which includes an exhibit, installation, qualitative exploration, and visual storytelling, is featured in *La Biennale di Venezia*, an immersive installation at the 17th International Architecture Exhibition curated by School of Architecture and Planning dean Hashim Sarkis. (May 22–November 21)

Lasell Village Learning and Living Forum—Hae Won Park participated in a panel discussion moderated by WBUR host and reporter Deborah Becker about the ways in which age-friendly environments make a positive difference across the lifespan, including for older adults. (June 9)

Communications

The Media Lab enjoyed significant coverage of its research and spinoffs in print, broadcast, and online sources, including:

- On *Should This Exist*, Caterina Fake talked to Kevin Esvelt, research assistant Anika Ullah, and other experts about bi-directional contact tracing, privacy, and the role of trust in efforts to stop the spread of Covid-19.

- Ekene Ijeoma was interviewed for *The Modern Art Notes Podcast*, the most listened-to audio program about art in the English language.

- *MIT News* talked to Space Enabled researcher Katlyn Turner about an article she co-authored for the Bulletin of the Atomic Scientists, in which she calls for antiracist action and accountability in the nuclear sector.

- *Coded Bias*, a documentary that highlights Joy Buolamwini's work around algorithmic bias, was shown at multiple film festivals before premiering on PBS and then moving to Netflix on April 5. The film has received positive reviews from outlets such as *Variety*, *Vice*, and *The New York Times*.

- *Science Friday* interviewed alum Ani Liu and research specialist Kate Darling for separate features.

- Career Girls, a video-based career exploration and readiness tool for girls, profiled research assistants Randi Williams, Jaleesa Trapp, and Alexis Hope, as well as alum Marian Muthui.

- *Science Magazine* and other outlets reported on an op-ed written by Robert Stickgold (Harvard Medical School), Antonio Zadra (Université de Montréal), and Adam Haar (Fluid Interfaces) and signed by more than two dozen other researchers, which warns of potential harms from commercial use of targeted dream incubation techniques.

- A collaboration between spinoff Graviky Labs, co-founded by alum Anirudh Sharma and materials science company Pangaia, where alum Amanda Parkes serves as chief innovation officer, received coverage in a wide range of publications, including *Vogue* and *Fast Company*.

- Media Lab spinoffs OpenSpace and OPT Industries were featured in *MIT News*.

- *The Wall Street Journal* profiled spinoff Spatial and featured a video demonstration of the company's tools for improving telepresence and remote collaboration.

Additionally, a new postage stamp series celebrating innovation featured a bionic prosthesis developed in the Biomechatronics group.

Other media outlets covering the Lab include: *The Atlantic*, *The Australian*, *Billboard*, *Boston Business Journal*, *The Boston Globe*, CBC, *The Chronicle*, CNN, *Core77*, CNET, *CoinDesk*, *CreativeBoom*, *Dezeen*, *EdSurge*, *Elle*, *Forbes*, *The Guardian*, *IEEE Spectrum*, *The Irish Independent*, *Mic*, *MIT Technology Review*, *Nature*, The Observer, Space.com, *The Standard*, *STAT*, *Surface*, *TechCrunch*, *The Times*, *Vanity Fair*, *VentureBeat*, *The Verge*, *The Washington Post*, WGBH, and *ZDNet*.

Finance

The MIT Media Lab's annual operating budget of approximately $55 million was a decrease of 30% from FY2020. With surpluses from prior years, our net asset balance is $25 million. Roughly 40% of funding ($22 million) came from our consortium, which started the year with 53 members. Sponsored project funding was $13.7 million and accounted for 25% of the FY2021 budget. Gift income came in at $12.7 million.

Members

In FY2021, the Media Lab welcomed three new member companies: Store Nº8/Walmart, Takeda Pharmaceutical Company, and Dematic.

Patents

Forty-four applications were filed on Media Lab disclosures between July 1, 2019, and June 30, 2020. Thirty-eight patents were issued for that same time period.

Directed Research

In FY2021, the Media Lab submitted 87 proposals for new or continuing directed research projects, including postdoctoral fellowships and no-cost collaborations. Approximately 16% of these proposals were for subawards in collaboration with other institutions. Sixty-four proposals remain under consideration, and 16 have resulted in awards. Fifty-two percent of the proposals submitted were in response to government solicitations (e.g., NSF, National Institute of Health [NIH], US Air Force, Department of Defense, Defense Advanced Research Projects Agency [DARPA], NASA), while others were submitted to foundations and other nonprofit sponsors. The new awards ranged from $8,000 to $3.6 million with durations of six months to five years.

In addition, the Center for Bits and Atoms submitted eight proposals for new or continuing directed research projects. Of the eight, two resulted in awards and four are still under consideration. Six of the proposals submitted were in response to government solicitations (e.g., NSF, NIH, Air Force Research Lab, DARPA). The funded awards range from $75,000 for one year to $149,980.19 for nine months.

Human Resources

Key searches:

- Director of Communications
- Director of People and HR Strategy

Key appointments:

- Professor Dava Newman, director
- Ariel Ekblaw, research engineer leading the Space Exploration Initiative
- Hildreth England, interim director of communications and special projects

Employee awards:

- Sarah Ballinger was awarded the MIT Excellence Award
- The Media Arts and Sciences team received an SA+P Infinite Mile Award

Key operational promotions:

- Anna Spector was promoted to senior financial officer

Other promotions:

- Monica Orta was promoted to assistant dean for diversity for the School of Architecture and Planning

Retirements:

- Peter Rombult, grants administrator
- Lorrie Lejeune, director of communications and special projects

Layoffs:

- 1.5 full-time staff members

Media Lab Members

Consortium Research Lab Members

Harman International, Samsung Company

Hyundai Motor Company

Kioxia Corporation

NTT DATA Corporation

Panasonic Corporation

Yokogawa Electric Corporation

Consortium Lab Members

Boston Consulting Group	Dematic
BP	DENSO Corporation
Cisco Systems Inc.	DENTSU Inc.
Citigroup	DP World
Comcast	Estée Lauder
Dell EMC	Ferrero
Deloitte LP	Google

Honda Research Institute Japan Co. Ltd.

Honeywell SPS

IDEO

Inter-American Development Bank

Intuit Inc.

Kearney

MacAndrews & Forbes Inc.

McKinsey and Company

Merck KGaA

Monetary Authority of Singapore

NEC Corporation

Nike Inc.

OMRON Corporation

POLA Chemical Industries Inc.

PTC

Salesforce

Shima Seiki Manufacturing Ltd.

Standard Industries

Steelcase Inc.

Tata Consultancy Services

Temasek

Toppan Printing Co. Ltd.

Truist

Twitter

US Air Force

Walmart

Affiliate Foundation Members

Robert Wood Johnson Foundation

Endowment and Naming Grants

Asahi Broadcasting Corporation

Armand and Celeste Bartos

Benesse Corporation

BT

Joseph Chung

CSK Holdings Corporation

Alexander W. Dreyfoos Jr.

Informatix Inc.

The LEGO Group

Dorothy Lemelson

LG Electronics Inc.

MasterCard International

Misawa Homes

Motorola Inc.

Masanori Nagashima '76

NEC Corporation

Isao Okawa

Schlumberger

Jeffrey L. Silverman '68

Sony Corporation

Swatch AG

Telmex

Toshiba Corporation

US Air Force

Philippe Villers

Research Contracts and Special Funds

Aalto University

Alfred P. Sloan Foundation

Baylor College of Medicine/NASA Johnson Space Center

Beth Israel Deaconess Medical Center/National Institutes of Health

Bezos Family Foundation

Boston University/NSF

Brain and Behavior Research Foundation

Brigham and Women's Hospital/US Army

The Broad Institute/Leidos Biomedical Research Inc.

The Broad Institute/The Paul G Allen Family Foundation

Burroughs Wellcome Fund

Cold Spring Harbor Laboratory/NIH

Columbia University/NIH

Electronics and Telecommunications Research Institute

Fiducoldex

HafenCity University

Harvard Medical School/NIH

Harvard University

Harvard University/US Army

Howard Hughes Medical Institute

Kadokawa Culture Promotion Foundation

Knight Foundation

Massachusetts General Hospital/Bill and Melinda Gates Foundation

Massachusetts General Hospital/NIH

The Michael J. Fox Foundation for Parkinson's Disease

NASA Goddard Space Flight Center

National Institutes of Health

National Science Foundation

Northwestern University/NIH

Schmidt Family Foundation

Space and Naval Warfare Systems Center

Tongji University

University of Augsburg/EC Directorate General for Research and Innovation

University of California, Davis/NIH

University of Michigan/NIH

University of Zurich/EC Directorate General for Research and Innovation

US Army

US Navy

Dava Newman
Director