

Media Laboratory

For the Media Lab, FY2012 was a year of change. In September 2011, Joi Ito joined the Media Lab as its fourth director. Promoting the lab as more of a “platform than a container,” Ito looked to renew the lab as an open community—initiating more live streaming from the lab and global conversations through the Internet. To reflect this emphasis on openness and broad participation, the lab decided to refer to its supporting organizations as “members” rather than “sponsors.”

In October, the lab hosted “Networks Understanding Networks,” a three-day meeting where lab members and guests explored how structured interactions affect our economy, businesses, health, and the ways we understand ourselves. A revised, more interactive format included “unconference” sessions, impromptu as well as curated meetings, and panel discussions with innovative thinkers including John Seely Brown, Yochai Benkler, and Larry Lessig.

In April, more than 400 members and guests participated in another major lab event, “Inside Out: Embedding Nature’s Design in Tomorrow’s Technology.” This was the first meeting in which the lab’s research updates were streamed live to the public. National Public Radio journalist John Hockenberry hosted the three-day event, which explored the intersection of nature and technology. Special guest speakers included Reid Hoffman, John Maeda, Theodore Berger, Sebastian Seung, and Craig Venter. During the meeting, Ito introduced the lab’s new advisory council, a diverse group of thought leaders who will work closely with the lab to define its changing role in the global community and push its culture out to the rest of the world. Council members are John Seely Brown, June Cohen, Peter Gabriel, Seth Godin, Reid Hoffman, Alberto Iberguen, Michelle Kydd Lee, Jennifer McCrea, Susan Schuman, Jeff Walker, and Keith Yamashita.

The Media Lab also initiated a new Conversations Series in February 2012. Speakers were Lawrence Lessig, Reid Hoffman, Tim O’Reilly, Howard Rheingold, Tony Wagner, Chuck Hoberman, and Sugata Mitra.

Research Initiatives

A sampling of 2011–2012 Media Lab research initiatives includes:

- Makey Makey, an invention kit that turns everyday objects into touchpads and connects them to the Internet. Anyone, from beginners to experts, can use this tool for art, engineering, and anything in between.
- ZeroN, a new physical/digital interaction element that can be levitated and moved freely, allowing the user and computer to physically interact with one another in three-dimensional space. Once levitated, ZeroN’s behavior can be digitally programmed to create simulations.
- NETRA (Near-Eye Tool for Refractive Assessment), a small plastic device produced for less than \$2 that provides a simple way for people in the developing world to use mobile phones to give themselves quick eye exams.

- Funf, an open-source, Android-based extensible framework for phone-based mobile sensing.
- Advanced 3D printing, which is closing the gap between what exists in nature and what humans can create. This technology allows us to imagine new materials with different properties in very complex shapes.
- Optogenetics, which involves the development of genetically encoded reagents that, when targeted to specific cells, enable the cells' physiology to be controlled via light. This technology is helping neuroscientists and bioengineers explore new treatments for brain disorders such as Parkinson's disease.
- LuminAR, which transforms a traditional, incandescent light bulb and desk lamp into a robotic, digital information device that provides just-in-time projected information.
- Scratch, an open-source programming language for kids that allows them to create their own interactive stories, games, music, and animations for the web. Children around the world have already created close to two million Scratch projects.
- Advances in commonsense computing and natural language recognition for the detection, prevention, and mitigation of cyberbullying in social networks.
- DoppelLab, an immersive, cross-reality virtual environment that serves as an active repository of multimodal sensor data produced by a building and its inhabitants.

Exhibitions and Performances

Professor of music and media Tod Machover had a busy year of performances:

- *Yesterday Happened: Remembering H.M.*, with music and sound design by Machover, was performed at the Central Square Theater from April 12 to May 13, 2012. The play, a collaboration between scientists and artists, explores the mysteries of the story of Henry Molaison, who at the age of 27 became frozen in time after experimental brain surgery.
- Machover collaborated with British theater company Punchdrunk on its New York production *Sleep No More*. This site-specific theater event combined Shakespeare's *Macbeth* with du Maurier's *Rebecca* and Hitchcock's *Vertigo*, creating an interactive experience for attendees (who were masked and set loose to wander through the multi-floor, multi-room installation). Machover and his group members added sensors to link physical participants with remote participants.
- Machover teamed up with the Toronto Symphony Orchestra and the citizens of Toronto to create *A Toronto Symphony: Concerto for Composer and City*, which will premiere at the New Creations Festival in March 2013. Toronto residents will contribute sounds that are quintessentially Toronto through a blog, email, or the project's Facebook page.

Sony Corporation career development professor of media arts and sciences Neri Oxman presented a collection of 18 new pieces at the Centre Pompidou in Paris in the exhibit *Imaginary Beings: Mythologies of the Not Yet*, on display from May 3 to August 5, 2012. These objects push the boundaries of 3D printing technologies.

Associate professor Joseph Paradiso's massive synthesizer was installed at the MIT Museum from January 11 to April 10, 2012. Possibly the world's largest homemade modular electronic music synthesizer, the Paradiso Synthesizer was built mostly between 1975 and 1985.

Fellows

Three corporate members—Hasbro, Intel, and Shell—funded student fellows, as did Draper Laboratory, an independent, not-for-profit research lab. In addition, each year the lab awards the Steven R. Holtzman Fellowship for Digital Expression, funded by the family and friends of the late Steven R. Holtzman. The following graduate students were named fellows during FY2012:

- Aydin Arpa (Draper Laboratory)
- Seth Hunter (Hasbro)
- Steven Keating (Steven R. Holtzman Fellowship for Digital Expression)
- Nick Joliat, Brett Lazarus, Brian Mayton, and Dan Smalley (Intel)
- Daniel Leithinger (Shell)

Members

The Media Lab, whose annual operating budget was approximately \$35 million in FY2012, continued to work on fostering a spirit of collaboration with lab members and advancing a model for one-on-one relationships between member companies and individual faculty members.

The Media Lab welcomed 18 new members in FY2012: APX Labs, Battelle, Berwind, Culture Convenience Club, DENSO, Digital Garage, Fleury, Hisense, IDEO, Lockheed Martin-LMCO, Natura, Olympus, Saudi Aramco, Shell, Sony, T-ARTS Company, Toppan, and Verizon.

Patents

The lab filed 68 patent applications during FY2012, and six patents were issued.

Directed Research

In FY2012 the Media Lab submitted 71 proposals for new directed research projects, including graduate and postdoctoral fellowships. Nearly one-third of these proposals were for subawards in collaboration with other research institutions. Fifty-four proposals remain under consideration, and 14 have resulted in awards. Approximately two-thirds of the proposals submitted were in response to government solicitations (e.g., National Science Foundation, National Institutes of Health, and Defense Advanced

Research Projects Agency), with the other one-third submitted to foundations and nongovernmental sources. The new awards ranged in size from \$10,000 to \$2.5 million and spanned six months to five years, with awards averaging \$125,000 per year for three years.

Human Resources/Administration

Christina Williams joined the Media Lab in September as the lab's director of finance and development. Other hires included Devin Advani as assistant director of finance, Jessica Sousa as the lab's event coordinator, Kate Darling as a research specialist working on examining the lab's intellectual property policy, and Sarah Ryan as executive assistant to Joi Ito. The lab would like to congratulate Peter Rombult, a member of the lab's finance team and grants administrator for the School of Architecture and Planning, who received an MIT Excellence Award—the highest honor given to an MIT staff member—acknowledging his extraordinary efforts to fulfill the goals, values, and mission of the Institute. He was honored at an awards ceremony on February 28.

Joi Ito
Director

Appendix 1. Media Lab Members

Consortium Research Members

BBVA
Digital Garage
Hasbro Inc.
Hisense Co. Ltd.
NEC Corporation
NTT
Panasonic Corporation
Samsung Electronics Co. Ltd.
Sony Corporation
Toshiba Corporation

Culture Convenience Club Co. Ltd.
Deloitte LP
DenokInn
DENSO
Dentsu Inc./ISID
DirecTV
ESPN
Fidelity Center for Applied Technology
Fleury
Fujitsu Limited
FutureWei Technologies Inc./Huawei
GlaxoSmithKline
Google
Hallmark Cards Inc.
Hearst Corporation
Humana Inc.
Hyundai Motor Company
IDEO
Infocast Limited
Intel
InterDigital Communications LLC
Intuit Inc.
KT (Korea Telecom)
The LEGO Group
LG Electronics Inc.
Lockheed Martin

Consortia and Joint Programs

Aegis Media
AOL Inc.
APX Labs
Aramco Services Company
Bank of America
Battelle
Benesse Corporation
Berwind
Best Buy Enterprise Services Inc.
BT
Cisco Systems Inc.
Comcast

Mars Inc.
 Marvell
 Motorola Inc.
 Natura
 News Corporation
 Nokia Corporation
 Nokia Siemens Networks
 Northrop Grumman
 NUL-G (affiliate)
 Oblong Industries Inc.
 Olympus Corporation
 Procter & Gamble Company
 QUALCOMM Incorporated
 Research in Motion
 RR Donnelley
 Sanofi-Aventis
 Sberbank
 Schneider Electric SA
 Sensormatic Electronics Corp.
 Shell
 Steelcase Inc.
 T-ARTS Company Ltd.
 Telecom Italia
 Time Inc.
 Toppan Printing Co. Ltd.
 Toys“R”Us Inc.
 Verizon
 VF Corporation
 Volkswagen
 Yamaha Corporation

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

Masanori Nagashima (Class of 1976)
 NEC Corporation
 Isao Okawa
 Schlumberger
 Jeffrey L. Silverman (Class of 1968)
 Sony Corporation
 Swatch AG
 Telmex
 Toshiba Corporation
 Philippe Villers

Fellows

Audi-Volkswagen
 Hasbro Inc.
 Friends and Family of Steven R. Holtzman
 Intel
 Shell

Research Contracts and Special Funds

Air Force Office of Scientific Research
 Alfred P. Sloan Foundation
 Boston University/National Institutes of
 Health, National Science Foundation
 Center for Integration of Medicine and
 Innovative Technology
 Damon Runyan Cancer Research
 Foundation
 Dartmouth College/Office of Naval
 Research
 Defense Advanced Research Projects
 Agency
 Duke University/Defense Advanced
 Research Projects Agency
 Harvard Medical School/anonymous
 foundation
 Human Frontier Science Program
 Intel Foundation
 Kadokawa Culture Promotion Foundation
 Knight Foundation
 Media Development Authority of
 Singapore
 MIT Lincoln Laboratory
 National Collegiate Inventors and
 Innovators Alliance
 National Institutes of Health
 National Science Foundation
 New York Stem Cell Foundation

Office of Naval Research
Raytheon BBN Technologies/Defense
Advanced Research Projects Agency
Rehabilitation Institute of Chicago
Rensselaer Polytechnic Institute/US Army
Space and Naval Warfare Systems Center
Stanford University/National Science
Foundation
The Institution of Engineering and
Technology
The Paul G. Allen Family Foundation
The Wellcome Trust
University of California/Army Research
Office
University of Massachusetts/National
Institutes of Health
University of Massachusetts Medical
Center/National Institutes of Health
US Army
US Veterans Administration