MAKING ALMOST ANYTHING
A NEW LAB FOR DIGITAL DESIGN AND FABRICATION

In ‘How to Make (Almost) Anything’, students design and build complete functioning systems single-handedly using a Santa’s workshop full of tools for CAD/CAM/CAE, embedded digital processing, laser and waterjet cutting, injection molding, 3D printing, circuit design and construction of circuits with embedded computer chips interfaced with input and output devices.

Neil Gershenfeld has offered the course in the Media Arts and Sciences program for years, but this fall he was joined by Meejin Yoon, Nick Gelpi and Skylar Tibbits to expand the course to the curriculum of the Department of Architecture. While architecture students have often enrolled in the course before, enrollment has always been limited to about 15 because of the equipment required.

SA+P’s substantial investment in the new laboratory allows the class now to accommodate twice the number of students, almost half of whom now come from SA+P—a significant expansion of the school’s resources and an important commitment to a broadened curriculum.

Yoon took the class herself when she first arrived at SA+P in 2001 as a new professor. ‘It really changed the way I thought about everything,’ she says. ‘Both CAD/CAM and fabrication are very normal things for architects to think about but we’re less accustomed to thinking about how to integrate technologies like actuators and microcontrollers, things that can give intelligence to the things we make. By bringing together the physical fabrication with technological integration, the class really stretches your grasp, your language.’

Department Head Nader Tehrani concurs, and considers the course an important asset for architecture students because of the general shift in emphasis from disciplinary closure to interdisciplinary work. ‘The relationship between things and their performance is becoming central to the way environments work,’ he says. ‘It’s no longer merely about having a room that has a light in it, but rather the way in which the electronic, lighting and mechanical functions can create a responsive environment. There’s no longer a division between the different disciplines, they are all infused.’

Much more online: sap.mit.edu/plan

This spring, as part of MIT’s 150th anniversary celebration, the Institute is sponsoring an ongoing Festival of Arts, Science and Technology, a five-month series of events and exhibits occurring throughout the MIT campus. (For a preview of events, see the foldout in this issue.)

The preparation for this festival has brought about a new spirit of teamwork among our faculty in music, theater, architecture, visual arts and the media arts and sciences—a sense of camaraderie that we aim to develop into long-term alliances and continuing collaborations.

This development is timely because of recently increased attention to the arts at the Institute level, including a new Arts at MIT website that gives enhanced prominence and access to the wide range of artistic endeavor here. (Take a tour of it here: arts.mit.edu.)

This new sense of partnership is also timely specifically for SA+P because of the recent inauguration of our new Media Lab Complex, where researchers in the visual arts and media arts and sciences are now working in close proximity, lending the arts heightened visibility and a sense of renewed energy.

Our school has been a leading champion of the arts at MIT from the Institute’s very beginning, advanced by a long history of talented artists and designers whose teaching and research has played an essential role in the Institute’s mission to build a better society. And as our festival demonstrates this spring, the arts continue to thrive here today. We hope you’ll be able to join us for some of the events we have planned.

Adèle Naudé Santos
MIT Museum Acquires Archives of KMW
Designers of the ‘Sixth Greatest Building in American History’

Researchers in SA+P’s Senseable City Lab have created a prototype robot for a system they call Seaswarm—a fleet of vehicles that could make cleaning up future oil spills both less expensive and more efficient than current skimming methods.

Unveiled at the Venice Biennale’s Italian Pavilion in August, the Seaswarm robot is comprised of a head and a conveyor belt covered with a thin nanowire mesh that can absorb up to twenty times its own weight in oil while repelling water. Sixteen feet long and seven feet wide, the robot uses solar panels for self-propulsion; with just 100 watts, the equivalent of one household light bulb, it could potentially clean continuously for weeks.

The vehicle works rather like a rolling carpet riding over the waves. Stretched across rollers, the belt propels the unit through the water while skimming its surface, then cycles through the vehicle’s head where the oil is heated to separate it from the mesh. The belt then rotates back into the water to collect more oil. In one design, the robots would burn the oil on the spot so they can continue working uninterrupted. Another design would have the robots occasionally break away to deposit their oil in large floating reservoirs from which tankers could collect it later on.

Produced in large numbers, each unit could cost about $20K, meaning a leak on the scale of the BP spill could be contained for $100M. According to project leader Assaf Biderman, the device will be ready to deal with oil spills in about a year. To see a video of the robot in action, visit senseable.mit.edu/seaswarm/

Pencil sketch of the Back Bay MBTA Station, which opened in 1987, designed by Kallmann McKinnell & Wood. The sketch is of a recently acquired collection at the MIT Museum. (Image: Courtesy of the MIT Museum, photographer, Lisa Schuchman)

The MIT Museum has acquired the archives of Kallmann, McKinnell & Wood Architects, one of Boston’s and the nation’s preeminent architectural practices. The highly respected firm began in 1962 when the City of Boston selected the design of the new City Hall by Kallmann McKinnell and Knowles, in a nation-wide competition involving 286 architects. (Henry Wood joined the firm in 1965.) The building received instant national and international recognition and, in a poll of architects and historians sponsored by the AIA, it was voted the sixth greatest building in American History.

From that spectacular beginning through its decades of work in civic, institutional and academic architecture, KMW has developed an international reputation for excellence in design and project management. Led by founding principals Gerhard M. Kallmann and N. Michael McKinnell, the firm has won Boston’s Harleston Parker Award six times for design of ‘the most beautiful building’ in Boston’s metropolitan area. (Since the award was created in 1923, no other architect has won the medal that many times.) In 1984, KMW received the AIA Firm of the Year Award, noting ‘the firm’s capacity to produce work of human value and lasting significance’.

It has also received 8 AIA Honor Awards, 3 AIA/Brick In Architecture Awards and 18 design awards from the BSA. The archives, which is being transferred to MIT in stages, includes thousands of drawings, models, photos and office records. Parts of the collection are already accessible for research and teaching — some of it will also go online in the near future – and the entirety of the collection, after a period of cataloguing and scanning, will be publicly accessible.

THE SHRINKING CITIES STUDIO
A NEW COURSE ADDRESSING URBAN POPULATION AND HOUSING LOSS

A new course in the Department of Urban Studies and Planning has taken up the problems of shrinking cities in the US, cities that have experienced dramatic population and housing loss in the last 50 years.

Initiated last spring by Brent Ryan, newly-appointed Assistant Professor of Urban Design and Planning and the Shrinking Cities studio—one in a series of joint studios offered by the City Design and Development group—drew graduate students from architecture and planning with experience in design and interest in housing policy.

Many of the nation’s older cities have lost population and housing since 1950. St. Louis lost 60% of its population from 1950-2000. Detroit went from 1.8M to 900,000; Baltimore from 950,000 to 650,000. And most of these cities have lost equivalent numbers of housing units.

The situation presents special problems for urban designers—who traditionally focus on how to structure growth—because in these cities growth is not the problem: most of their built fabric is being reduced through demolition, arson and abandonment, creating open space in the form of vacant house sites and even big industrial parcels, many of which are polluted. The aim of the studio was to address the role for urban design in such a situation.

In the studio’s first iteration last spring, students examined the shrinking city of Buffalo—1950 population 580,000, current population 270,000. Students took as their theoretical client the city’s Department of Housing, and since much of Buffalo’s existing housing is in poor condition, a central question was how to design homes in this unusual urban condition that’s neither rural, suburban nor fully urban. In essence, students were looking for a new understanding of what ‘urbanity’ is.

The scale of the studio was broad; students considered city-level design strategies, as well as new neighborhood form and the design of housing clusters. Each proposal examined a different condition of the Buffalo cityscape, considering elements like the city’s deteriorated residential fabric, its broad networks of rail and roadway infrastructure, and the Buffalo River, a de-industrialized area lined with abandoned grain elevators.

One proposal restructured heavily abandoned neighborhoods around new civic spaces and community buildings along an underused rail line. Another reorganized the city’s monotonous grid as a highly differentiated street network with new housing patterns.

A third proposal reoriented a partially abandoned neighborhood toward an active transit line and surviving institutions along a new open space network. And a fourth presented a new residential environment into the ‘monumental wilderness’ of the Buffalo River, using landscape as a filtration method for this polluted waterway.

Each proposal provided a vision for a new neighborhood that was also an attempt to reimagine what the urban design of a shrinking American city can be. To examine the proposals more closely, visit shrinkingcitystudio.wordpress.com.

The studio continues this spring with a focus on Baltimore.

HUGH MORE ONLINE: SAP.MIT.EDU/PLAN

A Swarm of Robots to Clean Up Oil Spills
A New Idea from the Senseable City Lab

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The current housing bust is only the latest in a series of events that seem to have conspired against the city of Buffalo – long-term economic decline stemming from economic-infrastructural shifts; the suburbanization of the middle class; the nationwide shift toward Sunbelt cities; racial polarization and segregation; and globalization. Below, a map of the city showing the percentage of parcels vacant, and proposed demolitions. (Image: Courtesy of Shrinking Cities Studio)
Architecture Grad Honored with Residency in Paris

A Triumphant Tale of Two Alums and Our Growing BSAD Program

A scholarship established by alumnus Tony Tappé (MArch’58/ MCP’58) has led to a great opportunity for recent alumna Amanda Levesque (BSAD’10). In an impressive vote of confidence about her talent and potential, Levesque has been granted a three-month residency, all expenses paid, at the Cité Internationale des Arts in Paris next year, to work on any project(s) of her choosing. Levesque credits her success, in part, to the interdisciplinary nature of her undergraduate work here.

The generous honor was granted by the Fontainebleau Schools of Fontainebleau, France, an 85-year-old program that brings students from different disciplines together to explore new ways of seeing, thinking and making architecture. Each year the school selects 15 to 25 fine arts students from around the world to explore the relationship between music and architecture, and develop collaborative projects. This year there were 21 students of architecture and 35 music students and at the end of the session, Levesque was singled out for her exceptional showing there. As a result, she will also serve as TA for next year’s architecture program.

Levesque attended the school on a $5K scholarship from alumnus Tony Tappé, who himself took part in the program as a graduate student at MIT and found it so worthwhile that he now underwrites two students every year—one from MIT and one from the Boston Architectural College where his son went to school; Colin Booth won the BAC scholarship this year.

Tappé has been a notably generous annual donor to SA+P for over thirty years, supporting scholarships, fellowships and activities throughout the university for recent alumna Amanda Levesque.

Sound Shapes + Ear Dances

A Tribute to Pioneering Sound Artist Maryanne Amacher

Between 1967 and 1981, Amacher produced 22 City-Links projects in total, relating sounds from one or more remote environments ‘live’ to the exhibition space as an ongoing sonic environment. At right, Amacher at work. (Photo: Peggy Weil)

In October, the MIT Program in Art, Culture and Technology (ACT) presented a tribute to pioneering sound artist Maryanne Amacher on the first anniversary of her death. During the 1970s, Amacher was a fellow at the Center for Advanced Visual Studies—a precursor of ACT—and her work was strongly influenced by its founder, the Hungarian artist and educator Gyorgy Kepes.

As a seminal figure in electroacoustics and architectural installation, Amacher worked extensively with otoacoustic emission, a physiological phenomenon in which the ears themselves act as sound generating devices. She researched sound in its spatial dimension and relation to time and composed several ‘ear dances’ designed to stimulate ‘ear tones’, clear third tones resonating within the listener’s ears.

Although not known by a wider audience, her work was recognized with important awards and grants from such organizations as the Guggenheim Foundation, the National Endowment for the Arts, the New York Foundation for the Arts, the Pew Memorial Trust and the Foundation for Contemporary Performance Arts; in 2005 she was awarded the Prix Ars Electronica.

While at MIT, Amacher worked on a series of installations called City-Links, using FM-quality phone lines to transmit sounds from remote locations into galleries, auditoria and radio broadcasts. In October, an exhibition at New York City’s Ludlow 38/Kuenstlerhaus Stuttgart brought together images and sound samples in a retrospective look at this important but little published series of early telematic art works.

The Center for Real Estate celebrated its 25th anniversary this fall with three days of festivities including a dinner for industry partners at the MIT Museum, a day-long conference held atop the new Media Lab Complex and a black-tie gala at Boston’s InterContinental Hotel attended by more than 280 alumni, students, faculty and friends.

Founded in the 1980s as the Center for Real Estate Development, MIT/CRE was the brainchild of Charles ‘Hank’ Spaulding, who collaborated with John de Monchaux, then dean of SA+P and MIT Professor Lawrence Bacow, now president of Tufts University, to establish a first-rate graduate education and research program in real estate. More than 800 graduates of the Center are now working in countries around the world.

With an overflow crowd of nearly 300 guests, the anniversary conference in October included a session focused on re-engineering buildings, a particularly important topic since 39% of all energy consumed in the US is consumed by buildings. (When the energy required to manufacture the buildings’ steel, glass and concrete is factored in, the percentage climbs to nearly 65%.)

How to reduce that excessive consumption through better design was the focus of a talk by SA+P’s John Ochsendorf, Associate Professor of Building Technology, about MIT initiatives to aid architects and builders with life cycle planning for buildings, aiming to develop ways to reduce emissions and costs at every stage of a building’s life.

Ochsendorf was followed by SA+P’s Sandy Pentland, Director of MIT’s Human Dynamics Lab, talking about how buildings are used, and how that use can be coordinated and reorganized to make buildings more efficient and productive. Following the conference, guests were offered the chance to tour SA+P’s new Media Lab Complex, as well as MIT’s new Koch Cancer Institute and the new Sloan School Expansion.

The following night, guests at the gala were treated to a video look back at the Center’s history through the eyes of some of its founders, alumni and current staff and featuring some of the major projects on which alumni have worked. You can watch the video online at techtv.mit.edu/collections/sap.885.
A LANDMARK ANNIVERSARY—ITS 145 DAYS OF EVENTS AND EXHIBITS TO HONOR THE INSTITUTE’S PAST AND ENVISION THIS COMING SPRING, AS MIT CELEBRATES ITS 150TH ALMOST ANNIVERSARY WITH 150 DAYS OF EVENTS, EXHIBITS, SYMPOSIA AND SURPRISES

THE MIT150 ANNIVERSARY CELEBRATION

Extending from January 7 to June 5, the MIT150 celebration will prominently feature a Festival of Arts, Science and Technology (FASiT) headed by SA+P’s Tod Machover, a series of symposia throughout the spring semester, and throughout the MIT150 campus, and highlight the efforts of several from SA+P.

The most extensive contribution from SA+P will be an “animated campus” curated by Skylar Tibbits, that will feature arts and architectural installations and interventions throughout the Cambridge campus, transforming it incrementally leading up to a grand finale on May 7. This transformation will begin in February with a series of indoor installations that will touch on topics relating the Infinite Corridor, transforming everyday spaces to create a sense of wonder or to reveal something that’s usually ignored.

As the weather warms, bigger installations will begin to appear outdoors, often dealing with technology. Yoon plans to install a screen of micro wind turbines under the sky with one of his inflatable stars and light them up; Sheila Kennedy has proposed a series of solar rockers that will move the wind and light them up; and Caroline Jones will propose a series of interactive rockers, some with LEDs and some with EL lights.

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Another element of the anniversary will be the MIT Grand Challenge, an annual competition to foster connections between MIT students, alumni, faculty staff and affiliates around the world, the contest will provide up to $100,000 in implementation grants to teams that submit the best proposals for solving today’s urgent challenges.

OTHER COMPONENTS OF THE CELEBRATION INCLUDE:

MIT150 WEBSITE
An online collection of more than 150 hours of sound and video—marking the achievements of the Institute. A dynamic experience for users—with images, video interviews with people who have shaped MIT, and 3D models of MIT buildings.

MIT150 INFINITE HISTORY PROJECT
A virtual version of the real thing—a setting for conversation among MIT community members and friends.

THE INFINITE CORRIDOR
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A new book from SA+P’s John Ochsendorf traces the development of the Rafael Guastavino family, a father/son team of immigrants whose ingenious ‘Tile Arch System’ enabled architects to create dramatic domed ceilings in such major landmarks as Grand Central Terminal, Carnegie Hall, the Biltmore Estate, the Cathedral of St. John the Divine, the Registry Hall at Ellis Island and many major university buildings.

In the late 19th and early 20th century, the Guastavinos were responsible for designing tile vaults in nearly a thousand buildings around the world, vaults that are among the most daring masonry structures of all time, but the firm’s accomplishments have remained relatively unknown to the public, primarily because the Guastavinos served only as contractors on the projects.

Ochsendorf is on a mission to change that. His new book, Guastavino Vaulting—lavishly illustrated with color photographs by Michael Freeman—traces the development of the remarkable construction technology from its Mediterranean roots to its highest achievements in the United States.

It features archival images, drawings and beautiful color photography showcasing the most spectacular of the vaulted spaces; an extensive appendix lists the addresses of all known extant Guastavino vaults, over six hundred masterpieces small and large.

In November, Ochsendorf presented his book on Guastavino vaults beneath actual Guastavino vaults in the Boston Public Library, noting that there are seven types of vaulting in the library and that these were the first of Guastavino’s vaults in which the tiles were left exposed, rather than plastered over, introducing a new element of the decorative to their work. He also noted that the Guastavino vaults could be built with no formwork for support, a technology actually developed in North Africa that can be found throughout the Mediterranean. But wherever it’s found, he said, it is claimed by the locals as their own.

In addition to his book and lectures, Ochsendorf has initiated the Guastavino Project at MIT, dedicated to documenting and preserving the Guastavino vaults, many of which have been destroyed. And Guastavino scholars in the United States are now planning a major exhibition in 2012 that will bring together scholars from around the world. To learn more: www.guastavino.net.

John Ochsendorf is an associate professor of building technology in the Department of Architecture, specializing in the history and technology of historic structures. He was the first engineer to be awarded a Rome Prize (2007) and the first structural engineer to be awarded a MacArthur Fellowship (2008).
César A. Hidalgo has been appointed to the Asahi Broadcast Corporation Career Development Chair in the Media Arts and Sciences Program. Hidalgo heads the Macro Connections Group, which focuses on the development of analytical tools to improve our understanding of the world’s macro structures in all of their complexity. His goal is to help improve understanding of the evolution of prosperity in order to help develop industrial policies that can help countries raise the living standards of their citizens. His areas of application include economic development, systems biology and social systems.

Before joining MIT, Hidalgo was an adjunct lecturer in public policy at Harvard’s John F. Kennedy School of Government and a research fellow at Harvard’s Center for International Development. A native of Santiago de Chile, he holds a PhD in physics from the University of Notre Dame and a bachelor’s degree in physics from the Pontificia Universidad Catolica de Chile. He is also a graphic-artist and has published and exhibited artwork that uses data collected originally for scientific purposes.

Neri Oxman has been appointed to the Sony Career Development Chair in the Media Arts and Sciences Program. Oxman directs the Mediated Matter research group, exploring how digital design and fabrication technologies mediate between matter and environment to transform the design and construction of objects, buildings and systems. Oxman’s goal is to enhance the relationship between the built and the natural environment by utilizing design principles inspired by nature, and implementing them in inventing digital design technologies. Areas of application include product and architectural design, as well as digital fabrication and construction.

Oxman received her PhD in design computation as a Presidential Fellow at MIT, where she developed the theory and practice of material-based design computation. In this approach, the shaping of material structure is conceived of as a novel form of computation. Prior to MIT, she earned her diplomas from the Architectural Association (RIBA) after attending the Faculty of Architecture and Town Planning at the Technion Israel Institute of Technology and the Department of Medical Sciences at the Hebrew University in Jerusalem.

Eric Klopfer, Director of the Scheller Teacher Education Program in the Department of Urban Studies and Planning, has received a grant of $2M from the National Science Foundation for a four-year collaboration with the University of Pennsylvania to improve the teaching of biology at the high school level. His colleague at Penn is Susan Voon, a former MIT postdoc, in the Graduate School of Education.

The grant funds the development of an introductory biology unit using computer simulations as a way for students to build their understanding of topics ranging from the origins of life to molecular biology, ecology and evolution. The material will be presented from the perspective of complex systems, helping students understand how the rules that govern individual units scale up to system behavior, and how they reflect such basic principles as randomness and equilibrium.

Each of the topics will entail simulation-based activities to fit with both the biology content and the systems principles. In a simulation of evolution, for instance, a student might see rabbits on the screen, each governed by certain rules regarding their characteristics, and by tweaking the simulation see which rabbits thrive and which fail under various circumstances.

Students will use not only pre-built simulations but also create their own. The intention is for them to learn about the content area while at the same time picking up design and programming skills and exercising their creativity, as well as learning how simulations are used in scientific research. Ultimately the aim is to explore the use of technology in teaching and learning to improve how any subject might be taught.

Teaching Biology with Technology
A $2M Grant from the National Science Foundation

Quantifying Human Behavior
A $10M Grant to Study Autism Spectrum Disorders

In order to ease its integration into schools, and enhance scalability, the simulation activities will be facilitated by a new web-based version of StarLogo TNG, a modeling tool that does not require advanced mathematics or programming skills. (Image: Courtesy of Eric Klopfer)
THE MEDIA LAB TURNS 25

A DAY-LONG EVENT EXPLORING THE LAB’S FAMED CULTURE OF INNOVATION

This fall, the Media Lab celebrated its 25th anniversary with a day-long event featuring demonstrations of current research, presentations by faculty and alumni and a series of interviews conducted by NPR host John Hockenberry that sought to articulate the Lab’s famed culture of innovation.

Founded in 1985 by Nicholas Negroponte and Jerome Wiesner—former MIT president and science adviser to JFK—the Media Lab traces its origins to the Architecture Machine Group of MIT’s Department of Architecture, a think tank/laboratory established in 1968 to focus on the then-new field of computer-aided design. The Media Lab has since gone on to develop a parade of technological breakthroughs in areas ranging from cognition and learning to holography, wearable computing, wireless/‘virial’ communications, sociable media, new forms of artistic expression and pioneering interfaces that seamlessly merge the physical and digital worlds.

Given the scope of work done at the Lab, people are sometimes surprised to find that it resides in the School of Architecture + Planning, so it was interesting to note at the anniversary event the frequent references to architecture and its importance to the success of the Lab. According to Negroponte, the culture of actually building things at the Lab, a fundamental aspect of the Lab’s approach, grew directly from the Lab’s origins in the architecture department. Likewise, the atelier model of teaching—apprentices working together with masters, learning by osmosis—grew from the Lab’s roots in architectural pedagogy.

With much of the day’s discussion focused on the creative culture that has been developed at the Lab, it was also notable how many speakers made reference to the space the Media Lab occupies and the importance of its effect on their work. The new building by Fumihiko Maki, in which the event was dramatically staged, was repeatedly praised for its high degree of transparency, allowing faculty and students to effectively peek over each others’ shoulders, facilitating an unusual degree of interaction and cross-fertilization—an environment that Maki himself traces back to the student-made mezzanines in the MIT architecture department of the 1970s.

The anniversary event began with a 5x5 session, hosted by Lab Director Frank Moss, in which five alumni from five different eras of the Lab’s history reminisced about the activities that helped define its creative environment.

That session was followed by presentations from the Lab’s five newest faculty members, all rising stars in their respective fields. Ed Boyden spoke of his work on optogenetics, an approach that could lead to new treatments for Parkinson’s, epilepsy and other brain diseases. Ramesh Raskar talked about his work developing cameras that can see around corners, in the world at large or inside the human body, and in near-total darkness. And Leah Buechley, who developed the Living Wall—wallpaper covered with conductive paint that contains LEDs and Bluetooth, so it can communicate with nearby devices such as lamps and window shades. Also included in that session were the Lab’s most recent hires, Neri Oxman and César Hidalgo, both introduced elsewhere in this issue.

The afternoon’s session with Hockenberry featured interviews and presentations with such Lab luminaries as Andrew Lipman, Martin Milton and Rosalind Picard, former MIT President Charles Vest; and Media Lab founder Nicholas Negroponte. Another highlight of the afternoon was Hockenberry’s discussion with Eric Schmidt, chairman and CEO of Google—the only Media Lab ‘outsider’ invited because, according to Negroponte, of all the companies in the field, Google has affected lifestyle the most over the last 15 years.

Between talks, visitors were given a chance to explore the work of the Lab’s 23 research groups, which includes over 350 research projects. Using RFID name badges issued at the door, they were able to interact with touch- and presence-sensitive screens that present information at the entrance to each research lab; when they approached one of the screens, they were recognized by their RFID name tag and given the option to view project demos, then to bookmark and save research projects to a downloadable personalized portfolio of their visit.

The event was covered extensively in the press with fascinated accounts of the details that caught the various journalists’ eyes, including how the Lab came to be known as the Media Lab; how the Lab operates to maximize its effect; the Lab’s predictions on the future; and practical advice from the visionaries for technology-solution providers. Much of the coverage also included slideshows and videos of technical demonstrations. To peruse the reports, visit the Lab’s website or search online for “Media Lab.”

MORE ONLINE: SAP MIT EDU/PLAN

PHOTO CREDITS: SAP MIT EDU/PLAN

(A) The Never-Ending Drawing Machine, an immersive, creative experience blending physical and digital techniques for story creation, developed as a platform for co-creative and collaborative play. (Photo: Judith M. Daniels/SA+P)

(C) Leah Buechley demonstrating Electronic Popables, an interactive pop-up book that sparkles, sings and moves. (Photo: Andy Ryan)

(D) Media Lab spin-off Harmonix Music Systems provided party attendees a chance to try out the company’s two newest releases, Dance Central (far-left screen) and Rock Band 3 (center and far-right screens), before they are available to the public. (Photo: Andy Ryan)
PIONEERING COMPUTER-AIDED DESIGN
DONOR PROFILE: MASANORI NAGASHIMA, M.Arch. ‘76

Masanori Nagashima (M.Arch ‘76) is a major donor to the School of Architecture + Planning, having established a fund in the Media Lab for graduate student financial support and having named the Masanori Nagashima Conference Room in the new Media Lab Complex. He is Chairman of Informatix, a company that develops software for architectural, engineering, construction and facility management industries. Below, a brief Q&A about his experience at MIT and after:

Why did you decide to study at SA+P? Around 40 years ago, I was a student studying architecture at the University of Tokyo in Japan. Architecture and the building industry were exciting fields to work on around that period, because we had to build so many cities from scratch, such as Tokyo, after the World War II. I could be a part of something new andI was not popular. But I developed an interest in computers for architectural design. MIT was the famous engineering school in USA, and I got a strong impression that I could study CAD in architectural design at MIT. But when I arrived at the Department of Architecture, I was puzzled that there were no CAD systems in the design studio. However, I soon found the MIT Architecture Machine Group and met Professor Nicholas Negroponte.

Who and what was memorable about SA+P? Professor Nicholas Negroponte is the person I have to list first. I was very impressed with his way of thinking when it comes to what is most important in each circumstance. There were also so many capable and attractive people: Andy Lippman, Chris Herot, Mike Miller, Seth Steinberg and so on. In 1975 John Hrabrak became the head of the Department of Architecture. He was a well-known figure for the systems building design, even in Japan. I really enjoyed attending his class. In order to study on computers, I took some classes at the Sloan School of Management. I was especially impressed by professors John Donovan and Stuart Madnick. Their lectures were wonderful.

Throughout your life—and especially as Chairman of Informatix—what have been your successes? Nicholas Negroponte provided me a job as a technical assistant at AMG from June 1976 for four months. Nicholas wrote about this in the Architecture Machine Group (May 23, 1976 issue). Using my nickname, M.A., M.A., M.A., my four month appointment should lead to one of the most handsome computer-aided architecture packages around. We all recognize M.A.S.‘ super-human programming abilities and can look forward to the results with enthusiasm..."

In late 1976, I moved from Cambridge MA to Cambridge UK. I was in the development team at Applied Research of Cambridge Ltd (ARC). We produced the commercial CAD software called General Drafting System (GDS) in 1960. In October 1981, I came back to Japan to establish a company selling GDS in Japan. This is the origin of Informatix Inc. GDS was sold not only in the UK and Japan, but also worldwide including in the US.

At Informatix, we are doing nearly 200 projects every year nowadays. We have thousands of valuable customers for CAD and GIS. They are using our system every day and I am proud to serve them with our systems.

What led you to make your generous gift to SA+P? Why did you choose to give for graduate financial support? As I mentioned earlier, I studied architecture then switched to computing because I came across the Architecture Machine Group at MIT. My time at MIT is so-to-speak an epoch-making period in my life. I therefore want to help open this sort of opportunity for students to have the similar exciting experience that I had there some time ago.

What is your advice for new graduates? When I arrived at MIT in 1974, I found MIT very active and exciting. I soon realized this is because the people over there are active and doing exciting things. I hope that new graduates will keep on trying what they want to accomplish, since they learned at MIT how to cope with problems to be solved. I do hope that they will continue to come up with more innovative solutions.

INTERVIEW BY STEPHANIE HATCH

‘THERE IS NOT ONE SET WAY OF DOING THINGS...’

ALUMNA PROFILE: ELLEN LOU (MCP’85, SMArchS’85)

As Director of Urban Planning and Design at the award-winning architectural and engineering firm Skidmore, Owings and Merrill LLP (SOM), Ellen Lou (MCP’85, SMArchS’85) directs urban design projects in the US and in Pacific Rim countries such as Vietnam, Thailand, China and the Philippines.

Years ago, as a student in her native Singapore searching for graduate programs, she went to the American Embassy Library and pulled out information on universities. ‘I learned of MIT this way,’ she says.

In her past experiences in Singapore, the university system allowed only two electives. But MIT was different. In her architecture studies, she had only two compulsory classes and in urban planning, only three core courses. ‘That was a dramatic difference,’ she says. ‘I learned there is not one set way of doing things. This allowed me to define what I was passionate about and to figure out what I needed to study. MIT taught me a way of thinking creatively and how to solve problems. That is why I value that experience.’

Her favorite courses included Institutional Analysis with Langley Keyes and an urban study course, with John deMonchaux and Julia Trilling, comparing planning in Paris and London with regard to centralized and decentralized planning approaches. Another favored course was Planning in Developing Countries, the principles of which she applies to her work every day. ‘I really remember the issues it raised. It taught me the approach and the organizational thought involved in those issues and still today I am building on that.’

Still passionate about developing countries, Lou now works in the San Francisco office of SOM, the firm originally founded in 1936 by SA+P alumnus Louis Skidmore ’23 and Nathan J. Owings, Sr. ‘29 became a partner in the 1940s, and, rated in 2010, the nation’s number one firm by Architect Magazine. This year, the San Francisco office was honored with six awards, including Firm of the Year, from the AIA California Council; in a press release announcing the news, SOM noted that the office has achieved nearly 90 awards for design and innovation in the past two years.

Some of the projects of which she is most proud include the San Francisco Transbay Area Redevelopment Urban Design Plan (a plan that guides the redevelopment of the Transbay Terminal and turned around the city’s attitude toward high density development); the Saigon South Master Plan (which guided the development of the southern expansion of Ho Chi Minh City and created the most desirable mixed-use community in Vietnam); and Shanghai Lujian Taipingjiao and Xinzandi Master Plan (which brought new approaches to planning for urban regeneration and historic conservation to Shanghai and China).

Lou mentions that working with good leadership is key. For example, while working on the master plan for the University of Utah campus, she remembers working with ‘very good leadership. They set clear goals, were open minded and worked closely with the campus and neighboring communities. We could come up with plans that were not only visionary, but also implementable.’

Ellen Lou’s work also extends into the nonprofit realm. As a board member with the San Francisco Planning and Urban Research Association (SPUR), she works with specialists from both the private and public sectors to develop policy recommendations to promote good planning practices.

Lou has come back to MIT to help with the MIT China Planning Network and has also helped with a class taught by Professor Dennis Frenchman. ‘I really want to share my experiences and lessons to help the students. I think we can really make a difference in the world.’

Lou Hill speaking about developing countries.

INTERVIEW BY STEPHANIE HATCH
FEBRUARY 3 THROUGH APRIL 3
Stan VanDerBeek: The Culture Intercom. The first major exhibition of work by media art pioneer Stan Vanderbeek. List Visual Arts Center.

FEBRUARY 4
Systems, Process, Art and the Social. A panel discussion examining the long shadow of cybernetics and systems theory in art and design from the 1950s until today, with particular focus on its shift toward the social. Moderated by Caroline Jones, head of The History/Theory/Criticism program, Department of Architecture. MIT 34-101. 1-5PM.

FEBRUARY 5
The History of Electronic Music at MIT. Moderated by Joe Paradiso, Associate Professor of Media Arts and Sciences. Media Lab Complex, 6th Floor.

MARCH 18
Death and the Powers. US premiere of Tod Machover’s new opera, developed at the Media Lab in collaboration with the American Repertory Theater. Cutler Majestic Theater, Boston. 7:30PM. Also playing March 22 and 25 at 7:30PM and March 20 at 3PM.

MAY 6 – JULY 10

MAY 7
FAST Light Festival. The grand finale to the Festival of Art, Science and Technology. Including Meejin Yoon’s Light Drift, Skylar Tibbits’ VDom, Otto Pleno’s Skyart and Scoposcopy by Joel Lamere and Cynthia Gunadi, among many others.