

Department of Architecture

The MIT Department of Architecture is dedicated to a socially responsible, technologically sophisticated, environmentally sensitive, and culturally engaging vision of architecture. It is also dedicated to a high level of research to engender a critical sense of self-consciousness for the discipline, with a heightened awareness of the evolution of debates, discourse, and polemics. The program is distinguished in that it includes within one department the many disciplines required for an architecture curriculum; more significantly, it creates the opportunity for each discipline to have specialized advanced degree programs. The department incorporates outstanding research and teaching programs in each of five discipline groups: Architectural Design (AD); Building Technology; Design and Computation; History, Theory, and Criticism (HTC); and Art, Culture and Technology (ACT).

Graduate degrees offered are master of architecture (MArch); master of science in architecture studies (SMArchS); master of science in art, culture and technology (SMACT); and doctor of philosophy (PhD) with concentrations in building technology; design and computation; or history, theory, and criticism of architecture and art. Undergraduates can earn a bachelor of science in architecture (BSA) or a bachelor of science in architecture studies (BSAS) with concentrations in one of the five departmental discipline streams, and can minor in architecture or history of art and architecture.

Commonly shared attributes that cut across all discipline groups are our devoted and spirited teaching, the grounding of architecture in both social and material issues, interdisciplinarity, and the remarkable internationalism of our faculty, students, teaching, and research. The faculty includes architects, landscape architects, urbanists, building technologists and engineers, historians of art and architecture, artists, and specialists in various areas of architectural research.

Faculty Notes

Professor of building technology Leslie Norford served as associate department head, professor of architecture Antón García-Abril served as MArch program director, associate professor of architecture J. Meejin Yoon was the undergraduate program director, associate professor of the history of architecture Arindam Dutta was the SMArchS program director, and associate professor of design and computation Takehiko Nagakura was chair of the Committee on Graduate Students. Associate professor of architecture and urbanism Alexander D’Hooghe served as director of the Center for Advanced Urbanism (CAU), a joint venture with the Department of Urban Studies and Planning (DUSP). Together with discipline group directors, they served as a cabinet to meet with the department head in an advisory and coordinating capacity.

John Fernández, Andrew Scott, and J. Meejin Yoon were promoted to full professor, and Ana Miljački and William O’Brien, Jr. to associate professor without tenure, effective July 1, 2014. Yoon was named to succeed Nader Tehrani as department head, also effective July 1. Following many years of distinguished service to the department, professors Stanford Anderson and Julian Beinart announced their retirements, effective in January.

Searches resulted in three new faculty appointments as of July: Rafael (Rafi) Segal, associate professor of architecture and urbanism without tenure; Rania Ghosn, assistant professor of urbanism; and Caitlin Mueller, assistant professor of structural design.

Visiting Committee

Following the visiting committee's spring 2013 campus visit, Professor Tehrani has been in continuing dialogue with committee chair Gregory Turner to advance two main themes. The first centered around leadership transition with the appointment of a new department head, and preserving the administrative and cultural advancements of prior years despite a change of guard. Tehrani organized discussions with discipline groups, key administrative cohorts, and students for critical feedback and perspective. The second theme—which was requested by the visiting committee—focused on the development of a growth framework for the department. In collaboration with administrative officer Rebecca Chamberlain, Tehrani developed a matrix that identified areas of cost, spatial needs, student support, and other resources that would be needed to promote an increase in the student body. This document was shared with provost Martin Schmidt. In addition, Tehrani showed Turner various ranking reports that placed the Department of Architecture among the top five schools of architecture—a higher standing than at any time in the last ten years.

Architectural Design

Faculty and Staff

Personnel in architectural design were professors Julian Beinart (fall), Michael Dennis (on leave spring), Antón García-Abril, Adèle Naudé Santos, Anne Spirn (joint appointment with DUSP), Nader Tehrani, and James Wescoat; associate professors Alexander D'Hooghe, Mark Goulthorpe, Andrew Scott, and J. Meejin Yoon; assistant professors Joel Lamere, Miho Mazereeuw, Ana Miljački, and William O'Brien, Jr.; senior lecturer Shun Kanda; professors of the practice Yung Ho Chang (spring), Philip Freelon (fall), and Sheila Kennedy; professor without tenure (retired) Jan Wampler (fall); principal research associate Reinhard Goethert; Belluschi lecturer Brandon Clifford; lecturers Cherie Abbanat, Lorena Bello Gomez (spring), Vincent James (spring), Yonatan Cohen (fall), Cristina Parreño Alonso, Rafael Segal (fall), Jose Selgas, and Bryan Young (spring); research scientist Skylar Tibbits; and technical instructors Christopher Dewart and Justin Lavalley. Beinart retired in January. García-Abril served as director of the group and of the MArch program.

Program Notes

With re-accreditation review of the professional MArch degree looming in spring 2015, the Architectural Design (AD) program revisited the curriculum of the first three semesters to ensure that core offerings addressed all of the discipline areas in a balanced way. This is the period of time when MArch students are a captive audience within a coordinated intellectual framework. Core studios and supporting courses have been in dialogue to ensure a holistic approach to architectural education, establishing closer ties between design, sustainability, ethics, and good professional practices. In addition, a new first-year core requirement dedicated to “making” was continued, in support of

MIT's larger ideal of *mens et manus*, in which students challenge construction conventions, material behavior, and conventional protocols with an eye to innovation. With a recently expanded Fabrication Lab, students were introduced to state-of-the-art equipment, cultivate a more critical relationship between design and construction, and foresee how the academy can become the foundation of the building industry's transformation.

While the first and second semesters were reinforced along existing lines, the third semester focused on establishing an inventive approach to the "integrated design studio." During this semester, students bring the various elements of building technologies, computation, sustainability, and cultural criticism into closer coordination within the context of a single design. Advanced option studios and workshop seminars emphasize research, allowing faculty to bring their particular areas of expertise into the pedagogical sequence. Newly formed labs such as Prototypes of Prefabrication Laboratory (POPLab) and the Self Assembly Lab, among others, serve as outlets for intellectual speculation. The thesis program was recalibrated to bring advisors to students one semester earlier, thereby offering design critiques and reviews at an earlier stage of conceptualization. Studios cover a wide range of topics, including sustainable cooperative settlements, the commercial fishing industry, innovative approaches to urbanism, the masonry house in China, nature as a constituent building material, public transportation in Indonesia, an architecture of limited resources in Kenya, regional ecology and edge development in the Meadowlands, and urban infrastructure typologies.

Cristina Parreño organized the fall AD lecture series, hosting Iñaqui Carnicero, Mimi Hoang, Francine Houben, Alex Miller, and Bryan Young. Brandon Clifford organized the spring series around a special set of internal debates called "Dinner with the In-laws," featuring pairs of faculty members taking on critical topics that impact the discipline today.

MArch Admissions

Students are admitted at two levels: Year 1 for those with undergraduate degrees in other areas of study, and Year 2 for those with undergraduate degrees in architecture who thus receive one year of advanced standing in our 3.5-year graduate program. In spring 2014, there were 526 applicants; 54 were admitted with 24 targeted for Year 1 (27 enrolled) and six for Year 2 (four enrolled). These figures reflect raw data as of April 2014. Actual enrollment data as reported in the annual Yearly Enrollment Report released in October 2014 can vary slightly.

Faculty Activities and Achievements

MIT was well represented at the 2014 Venice Biennale in Architecture: Miljački (with E. Franchi Gilabert and A. Schafer) co-curated the American Pavilion, which featured work by Chang, D'Hooghe, Tehrani, and Yoon. D'Hooghe had three design projects under construction, and his work was exhibited at the Chicago Art Institute. Freelon won two American Institute of Architects (AIA) awards: the Maryland Public Building of the Year Award and a North Carolina Merit Award. García-Abril launched his new research platform, the POPLab, won the Museum of Modern Art Uneven Growth Exhibition commission, and received the 2014 International Iakov Chernikhov Prize for young architects. Goethert was named to the World Bank team for a mayor's training

program in Vietnam and was a key speaker at the United Nations Habitat Conference in Munich. Lamere and Tehrani received a major grant from Verakin for a workshop project in Chongqing, China, on sustainable building practices. Lamere was named to the Homer A. Burnell career development chair. Mazereeuw organized panels for two symposia, Planning Practices that Matter (DUSP) and Scaling Infrastructure (CAU), and won a Rotch Traveling Studio Fellowship to take students to Indonesia, a major Tata Foundation grant for continuing work in India, and a MISTI (MIT International Science and Technology Initiatives) grant for the Sanriku Project in Japan. Yoon was commissioned to design the MIT Collier Memorial. With Collective-LOK, O'Brien won the 2013 Van Alen Institute international competition Ground/Work. Tehrani completed the Melbourne University School of Architecture project, which won a Progressive Architecture Award; he received an AIA New York Award for the New Hampshire Retreat. Tibbits launched his Self Assembly Lab for the study and design of novel manufacturing, products, and construction processes; he received a 2013 Architectural League Prize, The Next Idea Award at Ars Electronica, and the Visionary Innovation Award at the Manufacturing Leadership Summit.

Building Technology

Faculty and Staff

Personnel in Building Technology were professors Leon Glicksman, Leslie Norford, and John Ochsendorf; associate professors John Fernández and Christoph Reinhart; and lecturers Andrea Love (fall), Ben Markham (spring), and Carl Solander (fall). Fernández served as group director.

Program Notes and Faculty Activities

This program is best described through its faculty research agendas. Fernández continued as co-director of the International Design Center sponsored by the Singapore University of Technology and Design. The MIT Press published his book, *Sustainable Urban Metabolism* (with co-author Paulo Ferrao). With Ferrao and others, Fernández won a grant from the Fundação para a Ciência e a Tecnologia through the MIT-Portugal Program. Glicksman continued his research as part of the China US Clean Energy Research Center focused on energy efficient buildings. The use of natural ventilation is being promoted as a means to reduce energy use for air conditioning. A new design tool for natural ventilation, Cool Vent, is being used for this project as well as for the design of a new office building in Tokyo. A new research project sponsored by the Tata Foundation focuses on passive designs to provide comfortable conditions in low-income housing in India. Glicksman also continued as co-chair of the Campus Energy Task Force, whose projects focus on improving the energy efficiency of the campus, including advanced concepts for the new MIT.nano facility. Norford was named George Macomber Professor of Construction Management. He is lead MIT principal investigator for a new joint MIT-Masdar Institute investigation of the urban microclimate. He continued as lead investigator for the Center for Environmental Sensing and Modeling, an interdisciplinary research group under the Singapore-MIT Alliance for Research and Technology. He is contributing to *Utility of the Future*, a project launched by the MIT Energy Initiative to analyze the future of electricity delivery services. Ochsendorf was

named a MacVicar Faculty Fellow in March. He curated a public exhibition on the work of the Rafael Guastavino family, which opened at the Museum of the City of New York in March after a well-attended showing at Washington DC's National Building Museum from March 2013 to January 2014. Reinhart is co-principal investigator (with senior research scientist Kent Larson) of a new project on urban modeling interfaces under the King Abdulaziz City for Science and Technology/MIT Center for Complex Engineering Systems, and (with Norford) of the MIT and Masdar Institute Cooperative Program urban microclimate project. He continued to co-lead (with Ochsendorf) focus area C on Enhanced Operational Energy Efficiency and Life Cycle Performance of Buildings in Kuwait, as part of a Kuwait Signature project. He published an introductory textbook for architecture students and design professionals, *Daylighting Handbook I*, 11 peer-reviewed conference proceedings, and two journal articles.

History Theory and Criticism

Faculty and Staff

Personnel in HTC were professors Stanford Anderson (fall), Mark Jarzombek, Caroline Jones (on leave), Nasser Rabbat, and James Wescoat; associate professors Arindam Dutta and Kristel Smentek; assistant professor Lauren Jacobi; visiting associate professors Martha Buskirk (fall) and Emmanuel Petit (spring); visiting assistant professor John May (fall); professor without tenure (retired) David Friedman (spring); lecturer Olga Touloumi; and David Mather who taught a spring subject as a component of his postdoctoral fellowship. Dutta served as group director. Jarzombek continued to serve as associate dean. Stanford Anderson retired in January but continued to contribute to the teaching program in the spring term.

Program Notes

After receiving complaints from alumni, Jacobi and Dutta co-led an initiative to evaluate MIT's open access policy regarding dissertations. Through the MIT Council on Graduate Programs, they succeeded in winning a two-year removal policy at the time graduates are approaching publishers. They also presented their findings online to broaden the conversation on the impact of open source dissertations on publishing and tenure. The group undertook a series of exercises to better rationalize teaching requirements, the demands on students in the course of the doctoral program, the exam system, and the manner in which doctoral defenses are conducted within the program. As part of this project, a dissertation topic workshop was instituted at the culmination of the fall term in the third year; a similar workshop for the methods curriculum will be piloted next fall. A faculty search for a historian of modern architecture concluded in late spring; the proposed appointment will be reviewed in fall 2014.

HTC's contributions to the undergraduate program have been strengthened by new and continuing offerings. Two new subjects are being created with support from the D'Arbeloff Fund for Excellence in Education: *Imag(ing) Islamic History*, taught by Rabbat, and *Resonance*, taught by Jones and professor Stefan Helmreich from the School of Humanities, Arts, and Social Sciences. Jarzombek turned his global architecture undergraduate survey subject into a Massive Open Online Course (MOOC) with 22,000 people around the world registered and 5,000 actively participating. Separately,

he received a \$1 million Andrew W. Mellon Foundation grant to form the Global Architectural History Teaching Collaborative (GAHTC) to support the creation of teaching materials and tools for both graduate and undergraduate classes. The HTC Forum lecture series hosted Darby English, Pier Vittorio Aureli, and Ruben Gallo in the fall, and Carrie Lambert-Beatty and Ben Kafka in the spring.

HTC admissions in spring 2014 resulted in 89 total applications (78 PhD and 11 SMArchS). Five PhD applicants were admitted and four accepted; four SMArchS applicants were admitted from the HTC pool and one accepted. Our ability to offer competitive doctoral packages went a long way these last two years towards stemming the loss of our best candidates, who often were attracted to programs with higher funding.

Faculty Activities

HTC faculty maintained a strong profile through publications and conferences. In particular Dutta's edited volume produced to recognize the Institute's 150th anniversary, *A Second Modernism: MIT, Architecture and the 'Techno-Social' Moment*, and Jarzombek's *Architecture of First Societies: A Global Perspective* were released. Smentek received her first book contract for *Mariette and the Science of the Connoisseur in Eighteenth Century Europe*.

MIT Program in Art, Culture, and Technology

The Program in Art, Culture and Technology (ACT) is an academic department and a research center within the Department of Architecture that facilitates artist-thinkers' exploration of art's broad, complex, global history and its conjunction with culture, science, technology, and design via rigorous critical artistic practice and practice-driven theory. This exploration occurs in the program's academic offerings and in the research of faculty, fellows, and guests.

Faculty and Staff

Personnel in ACT were professor and program director Ellen Renée Green, associate professors Ute Meta Bauer (on leave fall) and Gediminas Urbonas; assistant professor Azra Aksamija (on leave spring); visiting professor Antoni Muntadas (spring); professor without tenure (retired) Joan Jonas (fall); and lecturers Gabriel Kahan (spring), Jesal Kapadia, Oliver Lutz (spring), Matthew Mazzotta (spring), and Angel Nevarez (fall). Bauer left MIT after the fall term to accept a new position in Singapore. A faculty search concluded in the spring term, with appointment details to be confirmed during the fall.

Program Notes

In spring 2014, six of 64 applicants to the graduate program were accepted and five were waitlisted. ACT ultimately offered admission to four waitlisted candidates and four of the 10 individuals offered admission accepted the offer.

For additional program notes and faculty activities, refer to the separate entry for ACT in the School of Architecture and Planning's Report to the President.

Design and Computation

Faculty and Staff

Personnel in Design and Computation were professors Terry Knight and George Stiny; associate professors Takehiko Nagakura and Lawrence Sass (on leave); associate professor of the practice Dennis Shelden (fall); principal research scientist Kent Larson; and lecturer Andrew Li (spring). Nagakura served as group director.

Program Notes

The fall lecture series was organized around the theme Polyglot Drawing Making, and featured Carl Lostritto, Paul Kaiser, Jürg Lehni, and Pablo Garcia. The spring series theme was Computing in (e)Scapes and featured Debra Weisberg, Jane Nisselson, and Tim Knowles. The group hosted Futures Past, a three-day international conference in November 2013 on the history of research and visions for human-machine systems for design, organized by current and former students Theodora Vardouli, Duks Koschitz, and Olga Touloumi with faculty members Knight and Stiny. Nagakura and Knight offered the second installment of Palladio Digitale in spring 2014 in collaboration with research fellow Daniel Tsai and professor Howard Burns (Scuola Normale Superiore di Pisa), funded by Autodesk and the department, intended to bridge design and computation research activities with history, preservation, and the technology industry. The group conducted a computational making workshop at the 6th International Conference on Design Computing and Cognition, University College London, in June 2014; workshop leaders were Terry Knight (chair), alumni Daniel Cardoso and Mine Ozkar, and students Vardouli, Dina El-Zanfaly, Cagri Zaman, and Athina Papadopoulou.

Selected Achievements

Nagakura received an MIT International Design Center Pilot Research Grant for UAV-based 3D photogrammetry and was featured in an article by T. Narahara in *Up&Coming*, Vol. 105, 2014.4.1 (Tokyo).

Master of Science in Architecture Studies Program

The SMArchS program is organized into six areas of study representing disciplines taught in the department: architecture and urbanism; building technology; design and computation; history, theory and criticism; the Aga Khan Program for Islamic Architecture; and architectural design. The architectural design stream graduated its first two students this year. This stream draws the largest number of applicants despite admitting one of the fewest; we hope to increase numbers in this area in the coming years.

In fall 2013, SMArchS inaugurated its own common room. Along with new Design and Computation offices opposite and HTC offices nearby, the program enjoyed a more integral sense of identity. The space has inspired students to create social and academic events that speak to their intellectual interests. A new event, SMArchS THESISitos, hosted 25 flash presentations of prospective theses. In spring 2014, SMArchS students initiated a bi-weekly SMArchS event series, partially funded by an Office of the Dean for Graduate Education Graduate Student Life Grant, bringing SMArchS students together for an informal exchange of ideas and further building a sense of community.

The Faculty Colloquium received additional funds to attract more senior level speakers. We continued to work on colloquium content to more effectively address concerns across all discipline groups. The SMArchS Committee devised more transparent review and nomination guidelines for the program's annual prizes, leading to greater satisfaction with both the process and the results. The thesis structure continued to be monitored and formalized to allow more cross-disciplinary input. New faculty and leadership in urbanism are expected to bring substantial improvements to the largest constituency within SMArchS—changes that we hope to capitalize on to make more all-around improvements in the way thesis is run.

SMArchS admissions results for spring 2014 yielded 320 applications, with 42 admitted, 28 targeted, and 27 enrolled.

Undergraduate Program

The undergraduate program is a broad non-professional degree program that prepares students for either a graduate professional degree program in architecture or a related field in design, building technology, computation, history/theory/criticism, or art/culture and technology. Yoon, Norford (in his role as undergraduate officer), and administrator for academic programs Renée Caso continued to support and strengthen the undergraduate experience. Ochsendorf will assume the role of director of the Undergraduate Program in Architecture in September 2014.

The department again joined forces with DUSP to participate in the Institute's Freshman Pre-Orientation Program by offering Discover Architecture + Planning, taught by Joel Lamere (Architecture) and Ezra Haber Glenn (DUSP). Seven freshmen enjoyed the four-day program, which included visiting noteworthy buildings and neighborhoods in Cambridge and Boston, a kayaking trip down the Charles River, and a design competition.

The Institute's Committee on Curriculum approved a major revision to the department's undergraduate program, which was introduced in May to those freshmen who selected architecture as their major. The new curriculum provides a more synthetic education in architecture for all students, balanced by required introductory courses in building technology; computation; visual arts; history, theory and criticism of art and architecture; design studio; and opportunities for advanced coursework in these disciplines.

In an effort to promote greater intellectual rigor and independent thinking, we encourage our undergraduates to complete a senior thesis. In spring 2014 seven seniors completed theses, reflecting a range of areas of concentration from art/culture and technology to computation and building technology.

Faculty members who served as undergraduate advisors, in addition to Norford and Yoon, were Aksamija, Fernández, Glicksman, Knight, O'Brien, Ochsendorf, Sass, Smentek, Spirn, Stiny, Urbonas, and Wescoat. Ten sophomores entered the department in AY2014, joining 10 juniors and 15 seniors, bringing the total number of undergraduate majors to 35.

Aga Khan Program for Islamic Architecture

The Aga Khan Program for Islamic Architecture at MIT is a leading program in the study of architecture in the Islamic world. Its outreach activities include a lecture series, a travel grant program, and a visiting postdoctoral program. The program's lecture series hosted Richard Gönci, Scott Redford, Sam Bardaouil and Till Fellrath, Masood Khan, and Lisa Wedeen. Post-doctoral fellows Zeynep Kezer, Antonio Rotolo, Elodie Vigouroux, and Sumayah Al-Solaiman, and students Kian Goh, Michael Kubo, Hala Mali, and Emily Williamson gave talks as well. In spring 2014, Wescoat organized a symposium titled The Orangi Pilot Project and Legacy of Architect Perween Rehman. In AY2014, the program had nine PhD and seven SMArchS students. Spring 2014 admissions results included two PhD and three SMArchS candidates.

Faculty Achievements

Rabbat received an award from the MIT D'Arbelloff Fund for Excellence in Education and a fellowship at the Annemarie Schimmel Kolleg, University of Bonn. His journal publications and conference presentations addressed issues of architecture, heritage, and identity. Wescoat led a US National Research Council study of delta waters, offered new design workshops on green infrastructure and water planning, and published articles and book chapters addressing historical and contemporary water and natural hazards issues, and cultural landscape research.

Across the Department

Department of Architecture Enrollments

As of October 2013, Course 4 counted a total of 35 undergraduate and 222 graduate students. Graduate students were enrolled as follows: 105 March, 49 SMArchS, 6 SMBT, 7 SMACT, 39 resident PhD, and 16 non-resident PhD.

Lectures

In fall 2013, the departmental lecture series hosted Kathrin Aste and Frank Ludin, Tatiana Bilbao, Merrill Elam, RCR, and Rafi Segal; Tehrani organized A Second Modernism: Roundtable with K. Michael Hays, Arindam Dutta, Meredith TenHoor, and Hashim Sarkis; William Baker presented the 2nd Edward and Mary Allen Lecture in Structural Design; and Greg Lynn presented the 2nd Ahmad Tehrani Lecture. Spring lecturers were Vincent James, Sylvia Lavin, Roland Snooks, and Sarah Whiting. Shigeru Ban presented the 8th Goldstein Lecture in Architecture, Engineering, and Science; Jan Wampler presented the Meehan Family Lecture; Enrique Sobejano presented the 20th Pietro Belluschi Lecture; and Alberto Veiga presented the 25th Arthur H. Schein Memorial Lecture. Discipline group lectures are mentioned in the relevant sections above.

Publications and Exhibitions

Manager of publications and exhibitions Irene Hwang oversaw seven shows in the Keller Gallery: *PosterFerguson: Personal Space* (September 2013), *Lim Friedman: Perverse Landscapes* (October 2013), *Landing Studio: 99 Marginal* (November 2014), *Jorge Otero-Pailos: Space-Time* (February 2014), *Room Studio: Get to Work (A:Log)* (March 2014), *VJAA:*

Surreptitious Urbanisms (April 2014), and *Millions: New Massings for New Masses* (May 2014). Department publications under her purview were (in fall 2013) *Course 04 Reader* (for the fall open house), *Keller Gallery Catalog Vol. 2* (six booklets), and *Amuse Bouche*; and (in spring 2014) *Building Discourse: Proposition & Proof* (MIT Department of Architecture Master of Architecture Thesis 2008–2013) and pamphlets for the fall and spring final reviews. Also in spring, Miljački edited *Under the Influence*, proceedings from her spring 2013 symposium of the same name, and Tyler Stevermer edited *Thresholds 42:Human*.

Architecture Student Council

The Architecture Student Council serves as an umbrella organization to facilitate student interests and as a liaison with department administration. Leaders for the 2014 calendar year were Elizabeth Yarina and Elizabeth Galvez, co-presidents; Kristina Eldrenkamp, secretary; Jessica Jorge, treasurer; Ryan McLaughlin and Laura Schmitz, wellness chairs; and Anastasia Hiller and Kun Qian, social chairs. Programming in AY2014 included a year-end barbecue, a finals brunch, wellness jogging and sports events, Friday night happy hours (in association with DUSP), Thesis Helpers, town hall meetings with the department head, and the Beaux-Arts Ball (with Harvard).

Nader Tehrani
Department Head
Professor of Architecture