

Department of Architecture

In 1868, the Massachusetts Institute of Technology created the first academic program in architecture in the United States of America. Replacing a system of purely professional apprenticeship, the Institute imported a system of more formal education in studios, sketching, and presentations of drawings and models from Europe. Many things have changed, but this hands-on approach to learning has not. Nor has its essential contribution to the nature of architecture as a design discipline combining many different forms of expertise and knowledge—in history, policy, creative expression, structural engineering, and research. What we do understand better today are the merits of a project-based approach to learning and why that approach is relevant across many disciplines. The past year provided intense and unexpected challenges to this model, which we negotiated with a combination of remote lectures and seminars, in-person making under rigorous Covid-driven protocols, and new experiments with making and learning together online.

Our students learn in a multitude of programs: master of architecture (MArch); master of science in architecture studies (SMArchS); master of science in art, culture, and technology (SMACT); master of science in building technology (SMBT); and doctor of philosophy (PhD), with concentrations in building technology, design and computation, and history, theory, and criticism. Undergraduates can earn a bachelor of science in architecture (BSA) or a bachelor of science in art and design (BSAD) and can minor in architecture; design; history of art, architecture, and design; and art, culture, and technology.

To help negotiate the complexity and diversity of expertise and learning in the department, we organize ourselves into four discipline groups that sit alongside a fifth, embedded program. Our discipline groups are Architecture and Urbanism (A+U); Building Technology (BT); Design and Computation (COMP); History, Theory and Criticism of Architecture and Art (HTC; with the Aga Khan Program for Islamic Architecture [AKPIA]); and, embedded within our department but with significant budget independence, the MIT Program in Art, Culture and Technology (ACT). MIT Architecture also includes several labs: the Future Urban Collectives Lab, Urban Risk Lab, Prototypes of Prefabrication Research Laboratory, Self-Assembly Lab, Sustainable Design Lab, Future Heritage Lab, and Infrastructure Architecture Lab.

The complex nature of our small but illustrious department mirrors the complex nature of the environments we study and create. Our efforts at re-tooling our education to cope with the ongoing pandemic have continued to focus as much on preserving the qualities of the unexpected, the innovative, and the delightful in our shared creative research as they have on traditional modes of classroom delivery. Adaptation and resilience are now essential goals for our community and its approach to learning. They also form the foundation of our approaches to the larger crises—of climate, of equity, and of civic engagement—that challenge the built environment today.

As a discipline of making, architecture is fundamentally constructive and optimistic. There is not an architect alive who does not want, in some way, to make the world both better and more beautiful. In the past year, the department worked across urgent

and contemporary issues ranging from affordable housing, public infrastructure, and disaster resilience to community spaces, displacement and migration, and questions of environment and architectural heritage. Increasingly, we examine all of these issues against the background of the climate crisis, whose causes, effects, and mitigation all reside, in large part, within the built environment.

Recognition

MIT Architecture's standing has continued to increase in recent years, and the department is recognized as a leader in the field both nationally and internationally. For the sixth consecutive year, the MIT School of Architecture and Planning was named the top university in the world for Architecture in the QS World University Rankings. In Art and Design, the Institute ranked number 4 globally. This year, MIT ranked number 1 in 12 subject areas.

Department Structure and Personnel

Aga Khan Program for Islamic Architecture

- Professor Nasser Rabbat (AKPIA/HTC joint appointment)
- Professor James Wescoat (HTC/AKPIA/A+U joint appointment; retired)

Architecture and Urbanism

- Professors Nicholas de Monchaux (joint appointment with the Department of Urban Studies and Planning), Antón García-Abril, Sheila Kennedy, Hashim Sarkis (joint appointment with the Department of Urban Studies and Planning), Andrew Scott, and Anne Spirn (joint appointment with the Department of Urban Studies and Planning)
- Professor Post-Tenure Adèle Naudé Santos (on leave during the fall)
- Professor James Wescoat (HTC/AKPIA/A+U joint appointment; retired)
- Associate Professors with Tenure Mark Goulthorpe, Ana Miljački (on leave), William O'Brien (on leave during the spring), and Rafael Segal (on leave during the spring)
- Associate Professors without Tenure Brandon Clifford, Rania Ghosn, Miho Mazereeuw, and Skylar Tibbits (A+U/COMP joint appointment)
- Professor of the Practice Yung Ho Chang (on leave)
- Associate Professor of the Practice Marc Simmons
- Mahony Lecturer Rosalyne Shieh
- Belluschi Lecturer Hans Tursack
- Lecturers Benjamin Fry, Jeremy Jih, Axel Kilian, and Cristina Parreño Alonso
- Visiting professors and instructors Cherie Abbanat, Rebecca Berry, Xhulio Binjaku, Angelo Bucci, Matthew Bunza, Garnette Cadogan, Sean Connelly, Alexander D'Hooghe, Lorena del Rio Gimeno, Rami el Samahy, Antonio

Furgiuele, Silvia Illa-Shedlah, Christopher Leong, Dominic Leong, Miko McGinty, Robert Mohr, Carolien Niebling, Roi Salgueiro Barrio, Susanne Schindler, Sebastian Schmidt Dalzon, and Oana Stănescu

- Undergraduate lecturers Marcelo Coelho, Bo-Won Keum, Lee Moreau, and Paul Pettigrew
- Technical instructors Christopher Dewart and Jennifer O'Brien
- Teaching fellows Marlana Fauer, Deborah Garcia, Zain Karsan, Michael Stradley, and Anna Vasileiou
- Principal research associate Reinhard Goethert

Art, Culture and Technology

- Professors Judith Barry and Renée Green
- Professor Krzysztof Wodiczko (retired)
- Associate Professors with Tenure Azra Akšamija and Gediminas Urbonas
- Assistant Professor Nida Sinnokrot
- Professor without Tenure Joan Jonas (retired)
- Lecturers Cherie Abbanat, Lara Baladi, Katarina Burin, Mario Caro, Lisa Crafts, Georgie Friedman, Marisa Jahn, Jesal Kapadia, Tobias Putrih, Rasa Smite, and Raitis Smits

Building Technology

- Professors John Fernández (on leave; director of the MIT Environmental Solutions Initiative), Leslie Norford, John Ochsendorf (joint appointment in the Department of Civil and Environmental Engineering), and Christoph Reinhart
- Professor Post-Tenure Leon Glicksman
- Associate Professor without Tenure Caitlin Mueller
- Lecturer Benjamin Marksman

Design and Computation

- Professors Terry Knight and George Stiny
- Associate Professors with Tenure Takehiko Nagakura (on leave during the spring) and Lawrence Sass (on leave during the spring)
- Associate Professor without Tenure Skylar Tibbits (A+U/COMP joint appointment)

History, Theory and Criticism of Architecture and Art

- Professors Arindam Dutta, Mark Jarzombek, Caroline Jones, and Nasser Rabbat (AKPIA/HTC joint appointment)
- Professor James Wescoat (HTC/AKPIA/A+U joint appointment; retired)
- Associate Professors with Tenure Timothy Hyde (on leave) and Kristel Smentek
- Associate Professor without Tenure Lauren Jacobi (on leave during the fall)
- Lecturer Christopher Ketcham
- Visiting instructor William Lockett

Leadership

Nicholas de Monchaux became department head as of June 1, 2020. Terry Knight and Les Norford continued on as associate department heads (Knight was appointed associate department head for strategy and equity on June 1, 2020). Academic program directors were O'Brien and de Monchaux (MArch; fall semester), Clifford (MArch; spring semester), Norford (Undergraduate), Kennedy (SMArchS and SMArchS AD), Segal (SMArchS URB), Barry (SMACT), and Reinhart (SMBT). Norford served as chair of the Committee on Graduate Students as well as the graduate officer. Tibbits served as the undergraduate D-Minor/BSAD coordinator. Our discipline groups were led by Barry (ACT), de Monchaux (A+U), Rabbat (AKPIA), Reinhart (BT), Stiny (COMP), and Smentek (HTC).

Faculty Promotions and Appointments

We celebrated the promotions of Ana Miljački to full professor and Rania Ghosn to associate professor with tenure. After a search and appointment case, we welcomed Yolande Daniels as an associate professor with tenure. We also welcomed Deborah Garcia as a teaching fellow.

Funding

Our faculty continue to increase the scope and impact of their research. Incoming sponsored research has substantially increased over the last few years, providing our students additional financial support and opportunities. Collectively, our faculty brought in approximately \$1.5 million in research funding over the past year.

Master of Science in Architecture Studies Program

The SMArchS program is organized into six areas of study according to the department's discipline groups. Professor Kennedy took over the role of program director in summer 2020. The program's main goals continue to be fostering research, synergies, and collaborations across discipline groups; increasing student funding; and strengthening the visibility of the program outside MIT, with equity and representation across diverse global regions.

Due to the pandemic and MIT's closure, the fall 2020 informational open house and spring 2021 open house were held online. Although attendance was low for both events, many SMArchS admitted students had already been in contact with their respective discipline groups and may not have required the information provided. Despite this situation, the admitted fall 2021 cohort was among the most diverse.

Because their program of studies is only two years in duration, continuing SMArchS students have been quite impacted by the pandemic and their inability to access books in MIT libraries or use tools in many MIT workshops. A number of students elected to take leaves of absence, affecting the cohort and planning as a whole since the class sizes are small in this highly selective program. In response to SMArchS students' desire to strengthen their sense of community, department funds were provided for weekly social hours with coffee and cookies. According to informal student feedback, these events were appreciated and contributed to the social community of the program. The social hours were held from the beginning of the fall semester through the spring, when thesis projects were presented online due to the continued closure of the campus and the dispersal of students into different time zones. Discipline groups held internal virtual thesis defenses for each student.

Master of Architecture Program

The MArch program is a professional accredited degree program in architecture that integrates critical thinking and design with advanced technical toolsets to prepare students to contribute meaningfully to the architectural field, be it through practice, teaching, or research. Professors de Monchaux and O'Brien co-directed the program in the fall semester. Starting in winter 2021, Professor Clifford took on the role of directing the program.

The program is continuing to increase in visibility and is attracting the highest caliber of applicants. Admissions were highly competitive, with a record number of applications (825). Twenty-one applicants were targeted, 30 were admitted, and 22 enrolled (45% female, 32% underrepresented minority, 32% international). This class of students is the most accomplished and diverse the program has enrolled.

In fall 2020, the MArch Curriculum Committee voted to compress the total number of required credits from 312 to 282 (plus thesis). This decision was ratified by an Institute Faculty vote on May 12, 2021. The program is currently gearing up for a National Architectural Accrediting Board visit in spring 2023.

Undergraduate Programs

The department offers two undergraduate majors: a bachelor of science (BSA) in architecture and a bachelor of science in art and design (BSAD). The long-standing Course 4 architecture major is a broad non-professional degree program that prepares students for either a graduate professional degree program in architecture or further education or employment in related fields. The art and design major, implemented four years ago, focuses on design as a discipline with applications beyond architecture. As noted, the department also offers minors in architecture; design; history of art, architecture, and design (Humanities, Arts, and Social Sciences [HASS] minor); and art, culture, and technology (HASS minor).

The BSA curriculum is now fully coordinated with the BSAD and the architecture and design minor programs, allowing students to choose among paths while collectively starting from a common foundation of introductory design studios. Overall, the design major and minor programs are helping us increase our reach to MIT's undergraduate population while also helping to grow our BSA enrollment.

This year we graduated 12 undergraduate architecture and design majors and 13 architecture and design minors. One of our undergraduate architecture majors was inducted into Phi Beta Kappa. Our cumulative number of Course 4 undergraduate students across 2021, 2022, and 2023 is 125. Beyond just our majors and minors, we had 627 undergraduate students take Course 4 subjects, emphasizing the much larger contribution our program makes to MIT's undergraduate population.

Professor Tibbits coordinates the architecture and design major and minor programs, providing guidance on course sequence, pedagogy, and selection of instructors. Professor Norford continued his position as the Course 4 undergraduate officer. Faculty members who served as undergraduate advisors included Professors Akšamija, Mueller, Norford, Ochsendorf, Smentek, Spirn, and Tibbits, as well as the manager of special projects, Paul Pettigrew, and the academic program manager, Renée Caso, who retired at the end of AY2021 after 25 years of service. Norford, Ochsendorf, and Pettigrew also advised first-year students.

Department of Architecture Admissions and Enrollments

For the fourth year, the department hosted an online open house. However, unlike previous years (and due to our continued remote presence), we were unable to host the webinars using the Building 9 Office of Digital Learning rooms. As an alternative, we held various sessions on October 26, including departmental and program overview sessions as well as student-led informational sessions. This format enabled prospective students to learn about Architecture's degree programs and meet our current students without the prohibitive costs of visiting the campus. The online open houses are more cost efficient and increase international participation while leading to similar admissions outcomes. Therefore the department intends to continue them in the future. Our spring admitted students open house was also converted to an online platform and followed the same format due to the continuing Covid-19 pandemic.

The Department of Architecture continued to dedicate resources to making the study of architecture more accessible to broader populations and to diversifying its student body. This year we launched the Applicant Mentorship Program (AMP) and ArchCatalyst workshops. AMP paired prospective applicants from low-income or underrepresented racial minority backgrounds with current students who offered guidance throughout the application process. The ArchCatalyst workshops were a series of student-led workshops designed to help undergraduates or anyone with an undergraduate degree plan their academic trajectories. While we did not share participation in these programs with the admissions committee, ultimately over 30% of our MArch admits came from program participants.

Admissions applications for the SMArchS program were up 11% from last year; yields were high and roughly consistent with the previous few years: 515 applications, 34 admitted, and 24 enrolled (overall yield: 71%). Diversity statistics showed an improved balance of international student numbers (63% international applications, 53% international enrolled) and a higher number of women applying (894 versus 794).

For the MArch program, admissions were highly competitive and the number of applications increased since last year: 826 applications—101 underrepresented minority, 444 female, 382 male). Fifty-one percent of the applicants were international. A total of 34 students were admitted (11% female, 32% underrepresented minority, 44% international), and 25 enrolled.

In AY2021, we had 30 undergraduate architecture and design majors, 58 undergraduate architecture and design minors, three undergraduates in the ACT and HTC HASS minor, and 34 undergraduate ACT and HTC HASS concentrators within our department. Our undergraduate program currently comprises close to 125 students spread out over three years of study (2021, 2022, and 2023). In addition to our undergraduate program, we had 169 master's students—108 MArch, 4 SMBT, 8 SMACT, 49 SMArchS (4 BT, 13 COMP, 6 architecture and design, 4 HTC, 5 AKPIA, 17 urbanism)—and 55 doctoral students (33 HTC/AKPIA, 11 COMP, 11 building technology), totaling 224 graduate students.

Lectures, Panels, and Symposia

In fall 2020 the department conducted a series of online conversations on current issues. These conversations focused on systemic racism and approaches to support art and design in Black communities. Conversation topics also included themes such as pandemics, history, inclusion, democracy and data, architecture, power, designing for resilience, the refugee crisis, art and slavery, and vernacularism and diplomacy in an increasingly transnational yet divided world. Working with the MIT Video Productions team to webcast and livestream each event across department social media platforms, we were able to reach thousands of viewers for each online event.

Speakers included Derek Ham, Veronica Cedillos, Sara Jensen Carr and Michael Murphy, Charles Davis II, Eddie Opara and Eric Chang (Ahmad Tehrani Symposium), Ikem Stanley Okoye, Walter Hood, Olalekan Jeyifous, V. Mitch McEwen, and Amanda Williams (Black Reconstruction Collective). Emanuel Admassu, Germane Barnes, Sekou Cooke, J. Yolande Daniels, Felecia Davis, and Mario Gooden offered a participatory workshop, and Walter Hood gave the Belluschi lecture. In addition, the department hosted a panel discussion featuring Bill Baker, Mohamed Ismail, Caitlin Mueller, John Ochsendorf, and Christine Theodoropoulos for the Edward and Mary Allen Lecture in Structural Design and The Architecture of Democracy, a conversation with faculty from Harvard and MIT.

Beyond the events developed across the department's diverse approaches to architectural knowledge, students led us in creating new forms of programming—from platforms for sharing life experiences to film series and conversations on Black history in the United States and cinema and the architectural imagination.

Spring 2021 lectures turned with hope, but not certainty, to our post-pandemic future. Topics included the architecture of the Amazon, concrete architecture in the Global South, and mapping the architectural history of Cairo. We examined the materiality of production and the materiality of race, spaces of care and spaces between, and the inescapable history of identity and information. We looked back to native titles and all around us at the invisible architecture of criminal justice and incarceration. Speakers included Marcos Cereto; Mohamed Kamal Elshahed; Christiana Moss; Sheriece Perry, Virgil Abloh, and Nóra Al Haider; Cruz Garcia and Nathalie Frankowski (WAI Think Tank); Mariam Kamara; Catie Newell, and Virginia Sanfratello; Azra Akšamija; Christine Binswanger, Jason Frantzen, and Hashim Sarkis (20th Arthur H. Schein Memorial Lecture); Joseph Kunkel (MIT NOMAS lecture); Felecia Davis; Anna Arabindan-Kesson; and Chris Leong, Dominic Leong, Sean Connelly, and Sanford Kwinter. Also, we hosted Engineering Independence, a symposium on focusing on the Global South. Our spring 2021 online public program was supported in part by the Arthur H. Schein (1951) Memorial Fund.

Departmental Publications and Exhibitions

In spring 2021, the department launched *Imprint 01*, a new publication produced by students and for students to showcase their work. Students in the department continued to work on the next volume, *Imprint 02*, forthcoming in fall 2021.

Also in the spring, the department launched *Thresholds 49: Supply*, the latest installment of *Thresholds Journal*, the annual peer-reviewed journal produced by the MIT Department of Architecture and distributed by The MIT Press. The publication was released digitally, and due to Covid-19 delays print copies will be released in the fall.

Over the past year, the department continued several initiatives launched in spring 2020 in response to the Covid-19 crisis, including [out of frame](#), a student blog developed to foster connection and elevate student life during the pandemic and beyond, and the Dispersed Department Digest, a weekly email to the internal department community featuring non-urgent news, useful resources, and updates from across the department, MIT, and beyond.

This year's exhibits planned for the department's Keller Gallery were canceled or postponed due to Covid-19; however, students in the department continued to share work via our online exhibition platform Open-Source and on our social media channels.

Student Departmental Awards

Each year, we recognize the accomplishments of our continuing and graduating students with awards. This year the following students were honored:

- Maryam AlHajri (Schlossman Research Award)
- Xiomara Alvarez (Alpha Rho Chi Bronze Medal)
- Charlotte D'Acierno (Edward Allen Student Prize and Imre Halasz Thesis Prize)
- Reza Daftarian (SMArchS Thesis Prize)

- Renaud Danhaive (TODA Award)
- Angelica Door (Louis C. Rosenberg [1913] Travel Fellowship)
- Patricia Duenas Gerritsen (Sydney B. Karofsky Class of 1937 Prize)
- Nare Filipoysan (Marvin E. Goody Award)
- Eduardo Gascon Alvarez (Arthur Rotch Special Prize)
- Mariana Gonzalez-Medrano (SMArchS Thesis Prize)
- Olivia Houck (Kristen Ellen Finnegan Memorial Fund Award)
- Emma Jurczynski (Rosemary D. Grimshaw Award)
- Seo Yeon Kwak (William Emerson Prize)
- Daniel Landez (William Emerson Prize)
- Jeffrey Landman (Special Faculty Recognition for Design Excellence)
- Clarence Lee (Imre Halasz Thesis Prize)
- Mohamad Nahle (SMArchS Thesis Prize)
- Natalie Pearl (Marjorie Pierce/Dean William Emerson Fellowship Award)
- Vanessa Pipitone (Henry Wentworth Gardner [1894] Prize)
- Lasse Rau (Julian Beinart Research Award)
- Jitske Swagemakers (Schlossman Research Award)
- Carolyn Tam (Marvin E. Goody Award)
- Lynced Torres (Arthur Rotch Prize)
- Irmak Turan (Tucker-Voss Award)
- Jaehun Woo (Imre Halasz Thesis Prize and American Institute of Architects Henry Adams Medal and Certificate)
- Qianyue Xu (Schlossman Research Award)

We are extremely proud of the work our students and faculty take on, both in the classroom and out in the world. Below are highlights of our community's collective pursuits, news, and achievements. The information includes personnel, faculty activities, and notes from each discipline and program group.

Architecture and Urbanism Discipline Group

Four degree programs reside within the Architecture and Urbanism discipline group: master of architecture (professional program), SMArchS architectural design, SMArchS architecture and urbanism, and bachelor of science in architecture. Professor de Monchaux stepped in as director of the A+U group in summer 2020. As noted,

Professors O'Brien and de Monchaux co-directed the MArch program in fall 2020, while Professor Clifford took over in the winter of 2021. The group initiated plans to retool the core studios of the program while working remotely, and in spring 2021 the MArch committee completed a white paper for hybrid and remote planning in preparation for an expected partial return to campus. The group also launched a search to fill two faculty positions in the area of architecture design and urbanism, with five of the short-listed finalists holding job talks in spring 2021 and final offers expected to be extended in the fall. Finally, the group recently welcomed Associate Professor J. Yolande Daniels.

Architecture and Urbanism's faculty continue to develop cutting-edge research in their field. Professor Clifford released two major projects: the Grayson Play-Lab and the Crop Circle Kit. Clifford's book *The Cannibal's Cookbook: Mining Myths of Cyclopean Constructions* was published in the spring of 2021 by ORO Editions. Also, his work was exhibited in an international solo show, *CARBS*, at Aedes Gallery in Berlin. Clifford received awards including the R+D Award from *Architect Magazine* for the project *Walking Assembly*, a Boston Society for Architecture Design Award for *AquíAquí*, and an AZ Award from *Azure Magazine* for the Grayson Play-Lab. In addition, he was presented a Falling Walls Award and was a Grayson Gala honoree.

Professor Ghosn's co-authored book *The Planet After Geoengineering* was published by Actar in 2021. Ghosn's design project *Elephant in the Room* won the Reimagining Museums for Climate Action Competition in 2020. Her work was exhibited at various international venues including the following: *Climate Inheritance* at the Bauhaus Museum in Dessau, Germany; *The Planet after Geoengineering* at the 17th Venice Architecture Biennale; and *Elephant in the Room* at the Glasgow Science Center in Scotland. Ghosn participated in lectures for the Onassis Foundation ("Climate Culture: Art-driven Narratives to Combat the Environmental Crisis"), the Geneva University of Art and Design ("Archipelago: Architectures for the Multiverse"), the Melbourne School of Design (Climate Imaginary Roundtable), Kent State University ("Geostories"), and the Edinburgh School of Architecture and Landscape Architecture ("Geostories").

Rami el Samahy's *Imagining the Modern: Architecture and Urbanism of the Pittsburgh Renaissance* (co-written with Chris Grimley and Michael Kubo, an MIT Architecture alumnus) won a Society of Architectural Historians Exhibit Catalog Award in 2021. El Samahy published an article with Fast Company on the role of design in Massachusetts gateway cities. His practice, OverUnder, completed a conservation master plan for Boston City Hall with support from the Getty Foundation Keeping It Modern program. OverUnder also completed the District 2020 design guidelines for future development of the Dubai Expo 2020 site and the first comprehensive wayfinding program at Harvard University.

Cristina Parreño Alonso's volcanic installation [Carbon to Rock](#) was exhibited at the Venice Architecture Biennale. The installation explores new artificial manipulations of the geological time scales of the carbon cycle, rethinking igneous rocks as new resilient materials for new high-carbon-capture architectures. Parreño Alonso's project *Transtectonics* was also exhibited at the Venice Architecture Biennale. Her forthcoming course The Deep Time Project on Climate Change was awarded a Center for Art, Science & Technology Cross-Disciplinary Course Development Grant in January 2021. It was

also awarded a d'Arbeloff Fund for Excellence in Education grant in April 2021. Parreño Alons was invited by the Association of Collegiate Schools of Architecture to be a chapter editor of the book *Learning Limits: Architectural Pedagogy for a Climate in Crisis*, and her essay "Deep Time Architecture: Building as Material Event" was published in March 2021 in the *Journal of Architectural Education*. She participated in the "How to Foster Deep Time Thinking" panel organized by the Long Now Foundation in April 2021.

Susanne Schindler published "Housing Beyond and Within the Market: Parts 1, 2 and 3" on Platform in March 2021 and "The Institutions Must Be Designed Before the Buildings" in *Perspecta 53: Onus*. Schindler's website *Cooperative Conditions: A Primer on Architecture, Finance and Regulation in Zurich* will be featured as an exhibition at the Venice Biennale. In November 2020, she co-organized *The Terms of Habitation*, a conference held at the Israel Institute of Advanced Studies in Jerusalem.

Art, Culture and Technology Discipline Group

The MIT Program in Art, Culture and Technology (ACT) is a discipline group and academic program within the Department of Architecture, and a center for artistic research and practice within the School of Architecture and Planning. ACT is headed by distinguished artist-professors and supported by a dynamic cast of practitioner graduate students and staff, visiting lecturers, fellows, affiliates, and guests. Through an integrated approach to pedagogy, public event programming, exhibitions, and publication, ACT builds a community of artist-thinkers around the exploration of art's complex conjunctions with culture and technology.

After an 18-month process, ACT launched its new website in June and rebranded itself the Art, Culture, and Technology program at MIT.

This was the second year of the three-year, Institute-wide Transmedia Storytelling Initiative (TSI) pilot. TSI funds are administered by ACT. In AY2021 the initiative supported the following:

- Four specialists in writing, digital fabrication, augmented reality and virtual reality, and media production
- Eight graduate students in roles as research assistants, teaching assistants, and student workers
- Development of a special subject in ACT and Comparative Media Studies
- The Open Documentary Lab's fall and spring lecture series as well as *Data Magic and Democracy: Privacy, Politics, and Transmedia Storytelling* in the fall and *3D/5G: Surveillance and Agency* in the spring
- Architecture's student-run film series *Cinema and Architectural Imagination* through bridge funding
- Four student and alumni Fialkow Fellow distance residencies and nine student and alumni production grants

Faculty were active domestically and internationally giving lectures, publishing, and producing work for group and solo exhibitions. Professor Barry's *All the light that's ours to see* was exhibited at Lumiar Cité in Lisbon, Portugal.

Professor Green's work was featured in two exhibitions at the Bortolami Gallery, in the outdoor exhibition *TITAN* in New York City, and at Halle für Kunst Steiermark in Graz, Austria.

The Urbonas Studio, Professor Urbonas, and ACT affiliate Nomedā Urbonienė exhibited *TRANSmutation* at the Schirn Kunsthalle in Frankfurt, Germany; *The Swamp Observatory* at the ZKM Art and Media Center in Karlsruhe, Germany; and *The Swamp Intelligence* at the 2020 Taipei Biennale.

Professor Akšamija exhibited two projects at the 2021 Venice Biennale and edited the 2020 volume *Architecture of Coexistence: Building Pluralism*.

Professor Sinnokrot was awarded the Ford International Career Development Chair, received grant funding from the Prince Claus Fund and Goethe-Institute, and published in e-flux and *Artforum*.

ACT hosted three lectures in fall 2020 and four lectures in spring 2021 as part of its fully virtual Monday Night Lecture Series. ACT also co-marketed Ekene Ijeoma's yearlong lecture series *Black Mobility and Safety in the US*. Approximately 40 speakers participated in ACT subjects, including public lectures in the new 4.368/9 *Choreographing the City* and 4.s34 *Artistic Methodologies* courses.

In July 2020, Antonina Palisano joined ACT as administrative and academic liaison, and in June she received a School of Architecture and Planning Infinite Mile Award as a member of the Academic Administrators and Student Support Services Team.

In spring 2021, eight of 89 viable applicants to the graduate program were accepted and eight were waitlisted. ACT targeted an entering class of six students. All eight of the accepted students chose to matriculate in fall 2021, along with one deferral from the spring 2020 admissions season. As a result, nine students are scheduled to join ACT in the fall as the Class of 2023.

Building Technology Discipline Group

Building Technology offers students the opportunity to explore critical topics for the future of the built environment and natural resources. The program explores ways to use design and technology to create buildings that contribute to a more humane and environmentally responsible built world. Professor Reinhart continued to serve as the director of the Building Technology group in AY2021.

Building Technology faculty continue to attract support from the larger MIT funding ecosystem, including the MIT Energy Initiative, the Center for Complex Engineering Systems, the HKUST-MIT Research Alliance Consortium, the Environmental Solutions Initiative, the Leventhal Center for Advanced Urbanism, and the MIT Portugal Program.

Professors Reinhart and Mueller were awarded an MIT Portugal Program seed grant to collaborate with the Technical University of Lisbon on a building stock embodied carbon model for Portugal.

Professor Glicksman is continuing his research on SARS-CoV-2 aerosol spread in classrooms. He is also working with D-Lab collaborators on innovative evaporative cooled storage facilities for farm produce in the developing world. In the coming year, demonstration units in Kenya and India will be constructed and evaluated.

Professor Fernández completed year one of a second five-year term as director of MIT's Environmental Solutions Initiative.

Professor Norford continued his research on resilience of urban areas in extreme heat events, conducted within the Leventhal Center for Advanced Urbanism. With Professor Mueller, he was awarded an MIT Energy Initiative seed grant for the design of integrated structural-thermal systems to provide low-energy thermal comfort in buildings in the Global South. Through experimental studies of the response of MIT buildings to changes in set-point temperatures, he is assisting the MIT Department of Facilities in developing thermal control strategies for campus buildings to reduce carbon emissions.

Professor Ochsendorf served as the MIT co-director of the International Design Center during its final year in collaboration with the Singapore University of Technology and Design. He also co-chaired a strategic planning committee with Professor Maria Yang on the future of design across MIT, reporting to Deans Hashim Sarkis (School of Architecture and Planning) and Anantha Chandrakasan (School of Engineering). In spring 2020, Ochsendorf was honored with an Architecture Award from the American Academy of Arts and Letters.

During January 2021, Professor Reinhart organized a three-day workshop with representatives from Braga (Portugal), Cairo, Dublin, Florianopolis (Brazil), Kiel (Germany), Middlebury (VT), Montreal, and Singapore to develop carbon reduction strategies for their building stocks. Several Building Technology faculty have written white papers to propose strategies to help the United States meet its carbon reduction goals and are actively working with the MIT Washington Office to share their ideas with congressional staffers. Professor Reinhart gave an invited talk at Florida Atlantic University and hosted a YPO Program panel session. In August 2020 and June 2021, edX published the second and third versions of MIT 4.464x Sustainable Building Design, led by Professor Reinhart; the course has attracted 39,000 learners to date. Three of the four MIT Energy Initiative MicroMasters classes on energy have been completed.

Professor Mueller continues to research and develop strategies for embodied carbon reduction, especially in urbanizing contexts in the Global South. Working with the Leventhal Center for Advanced Urbanism and a nongovernmental organization in Mexico, she is applying her work in structural optimization of concrete structures to affordable housing design and construction. In addition to her work on low-carbon structural design, Mueller has continued to advance research connecting machine learning to high-performance design in the built environment, funded by a grant from

the National Science Foundation. Mueller delivered the keynote address at the Institute of Structural Engineers Digital Design and Computation conference in May 2021 and was awarded a best paper prize at the Symposium on Geometry Processing for her work on a new design data set for machine learning tasks.

Design and Computation Discipline Group

The Design and Computation group's continued goal is to extend the boundaries of research and education in computation and spatial designs, especially in collaboration with relevant industries and academic entities. Professor Stiny served as group director in 2020–2021.

The Design and Computation faculty continue to conduct new and cutting-edge research in their field. Professor Knight presented an invited talk titled "Connecting the Dots" during the Design Society Seminar Series. Knight continues to work as a co-editor for the Routledge Design, Technology, and Society series.

Professor Tibbits exhibited at the 2021 Venice Biennale and the U-Joints Exhibition. His book *Things Fall Together: A Guide to the New Materials Revolution* was published by Princeton University Press in summer of 2021.

History, Theory and Criticism of Architecture and Art Discipline Group

The History, Theory and Criticism of Architecture and Art (HTC) program aims to produce leading-edge scholars and intellectuals in the field of art and architectural history. The group places a strong emphasis on historiography and analytical methodologies. Faculty members explore the history of art and architectural works, the shifting attitudes toward their interpretation, and the geopolitical pressures on their appearance, preservation, and disappearance. During the academic year, and under the circumstances of the global pandemic, the HTC faculty continued to teach, publish, and participate in key events in their field.

Professor Smentek served in her role as director of the program for a third academic year and will hand over this role to Professor Hyde as of July 1. Other HTC personnel included Professors Jarzombek, Jones, Rabbat, and Dutta. Professor Hyde was on leave for the academic year, while Professor Jacobi was on leave during the fall semester. Jessica Varner PhD '20 taught required subjects as an HTC visiting instructor in fall 2020.

Elizabeth Browne, Huma Gupta, Jessica Varner, and Rixt Woudstra completed their PhD degrees this year. Katie Dubbs and Zainab Taymuree completed their SMarchS degrees.

Professor Jones was one of 12 MIT faculty members honored with a 2020–2021 Committed to Caring Award; the award recognizes faculty mentors who devote true attention to students' well-being.

As founder of the Office of (Un)Certainty Research, Professor Jarzombek developed three new projects during the past year in collaboration with Vikram Prakash of the University of Washington: *House Deconstructed* (which will be exhibited at the upcoming

Venice Biennale), *Tirtha* (which will be exhibited at the Palazzo Mora alongside the biennale), and *A Cenotaph for Niels Bohr*.

Professor Hyde was awarded the 2020–2021 Clark/Oakley Fellowship at the Clark Art Institute and Williams College.

HTC PhD candidate Olivia Houck was awarded a Fulbright-National Science Foundation Arctic Research Grant in Iceland for 2021–2022. This was one of the several prestigious fellowships awarded to HTC graduate students this year.

Aga Khan Program for Islamic Architecture

As an academic leader in the study of architecture and urbanism in the Islamic world, the Aga Khan Program for Islamic Architecture at MIT worked to maintain all of its programmatic functions during the Covid-19 lockdown. AKPIA continued to recruit promising students for the SMarChS and PhD programs as well as postdoctoral researchers. The program sponsored a number of lectures and conversations via Zoom.

Nasser Rabbat is the Aga Khan Professor and the director of the Aga Khan Program for Islamic Architecture at MIT. In 2020, he was the W. Bernard Herman Distinguished Visiting Scholar at the University of Toronto. He has published several essays on late antiquity, cosmopolitanism, and Islamic architecture, heritage, and archeology. His book on 15th-century Egyptian historian al-Maqrizi will be published by Edinburgh University Press in 2022. During the Covid-19 lockdown, he recorded several podcasts with Online afikra, the Metropolitan Museum, Marefa, and the King Abdulaziz Foundation. In 2020–2021, he gave online lectures at Bonn University and Harvard.

James Wescoat transitioned to professor emeritus after 12 rewarding years of research, teaching, and service with the Aga Khan Program for Islamic Architecture at MIT.

Nicholas de Monchaux
Head
Professor of Architecture