

Programs 2018–19



**MIT Center for Art,  
Science & Technology**  
2018–19 Programs





The  
**ARTS  
AT MIT**  
are rooted in  
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Published in 2019 as the fifth in a series of  
reports on projects produced and funded by  
the MIT Center for Art, Science & Technology.

Center for Art, Science & Technology  
Massachusetts Institute of Technology  
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Cambridge, MA 02139

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Cover image: *Spider's Canvas/Arachnodrone* performance during Tomás Saraceno's exhibition *ON AIR* at Palais de Tokyo in Paris, France, on November 23, 2018. Credit: Aurelie Cenno/Palais de Tokyo.



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## From the Directors

The past year has been a remarkable one for the MIT Center for Art, Science & Technology (CAST). The Andrew W. Mellon Foundation renewed its support for the further integration of CAST into the research culture of the Institute. This third grant brings the Mellon Foundation's total support for CAST to \$4 million through 2024.

Diversity, depth, and wide dissemination characterize the work supported and produced by the Center. In total, during the 2018–19 academic year, CAST awarded \$500,000 in funding for 17 projects to commence in fiscal year 2020, including new awards for one Distinguished Visiting Artist, six Visiting Artist grants, five Mellon Faculty grants, four Fay Chandler Creativity grants, and one Cross-Disciplinary Class Development grant. In addition, nine projects are ongoing and will culminate in the coming academic year.

CAST's newest publication, *Being Material* (MIT Press, 2019), was officially released in October 2019. Our third book explores the many ways of being material in the digital age.

*MIT Performing*, a prototyping and presenting series programmed by acclaimed director and Professor of Theater Arts Jay Scheib, was launched at MIT's black box theater in W97, which opened in October 2017.

One of CAST's first public-facing initiatives, *MIT Sounding*, is now in its fifth season. Curated by CAST Faculty Director Evan Ziporyn, the series has established a reputation for its global orientation and broad aesthetic scope, presenting underexposed and emerging artists whose work engages with technology, tradition, and culture in unexpected and compelling ways.

*MIT Sounding* continues MIT's tradition of research-based artistic practices and fosters the Institute's signature encouragement of cross-disciplinary collaboration. Often, these multidisciplinary partnerships are embedded in performances or installations in ways that may not be immediately apparent to audiences, as was the case in two of this year's concerts. Singer, composer, and multi-instrumentalist Jacob Collier returned to MIT to perform with the MIT Festival Jazz Ensemble, Vocal Jazz Ensemble, Rambax Senegalese Drum Ensemble,

and more than 100 other MIT students and community members. At the heart of this large-scale performance, hidden in plain sight, was a groundbreaking bespoke harmonizer designed for Collier by master audio technologist Ben Bloomberg, a PhD candidate in the Opera of the Future research group at the MIT Media Lab. The harmonizer allows Collier to create and modify in real time his signature meticulous, ever-changing harmonies. Bloomberg and Collier's collaboration is "guided by the belief that tech should be a tool for extending human capabilities, rather than a crutch to lean on."<sup>1</sup>

Another type of covert audio interface was created for the premiere of *Spider's Canvas/Arachnodrone* by four collaborators. The group spun out sonic potentialities from a laser spider web scanning technique originally developed by CAST's inaugural Visiting Artist Tomás Saraceno. This data was translated into a mathematical model by MIT Civil and Environmental Engineering (CEE) Department Head and Jerry McAfee (1940) Professor of Engineering Markus Buehler and his research team, and in turn reimagined as a traversable virtual 3D environment by researcher Isabelle Su. The environment, projected onto multiple screens from within, is simultaneously sonified—turned into a digital 13,000-string microtonal Aeolian harp, triggered by Su's navigation of the virtual space, sonically sculpted by Music and Theater Arts lecturer Ian Hattwick, and augmented with electronic improvisations by Ziporyn and composer Christine Southworth.

Here and elsewhere, the research component may be a primary motivation, but its presentation is manifest in live performance. Two Mellon Faculty Grants, a cornerstone of CAST's programs since 2012, reveal this effort to enliven what might otherwise be found only in classrooms, research laboratories, or peer-reviewed papers and publications.

With CAST support, Gediminas Urbonas, Associate Professor in the MIT Program in Art, Culture and Technology, created the *Swamp School*. An experimental branch of the *Swamp Pavilion*, it was part of Lithuania's national exhibit at the 16th Annual International Venice Architecture Biennale in 2018. The *Swamp School* challenged conventional concepts of

territory and addressed climate change through experiments in design, pedagogy, and artistic intelligence. It was conceived in three chapters—*Swamp Radio: On transmitting*; *Futurity Island: On symbio-poetics*; and *Commonism: On Cohabitation*. The suite of events associated with the *Swamp Pavilion* attracted an audience of 16,850 in Venice, and has had a significant afterlife—including an installation of *Futurity Island* at MIT and the new book, *Swamps and the New Imagination* (Sternberg Press, forthcoming).

Ana Miljački, Associate Professor of Architecture, has created a similarly unconventional performative platform for architecture discourse. The *Critical Broadcasting Lab* challenges the norms of architectural production and dissemination through a new form of "operative criticism." The Lab acts as an oral history broadcast and curatorial entity, addressing topics that are overlooked in the architectural press and museum exhibitions. During the past academic year, the Lab presented a series of Agit Arch Experiments in conjunction with the 150th anniversary of the architecture program at MIT, and will travel to the São Paulo Triennial and the first Seoul Biennial of Architecture in the coming year.

Liveness and presence were also infused into two artworks based on collective and artificial intelligence. In *ARTificial Intelligence*, Stephanie Frampton, Associate Professor of Literature, and PhD candidate Jonny Sun challenged AI to be emotionally intelligent. *The Laughing Room* became their live experiment, a room in the Cambridge Public Library that plays a laugh track whenever participants say something that the room's algorithm deems to be funny.

For Visiting Artist Agnieszka Kurant, the challenge was to explore one prominent system of anonymous piecework in the gig economy. She worked with Boris Katz, Principal Research

Scientist at CSAIL (Computer Science and Artificial Intelligence Lab), and his InfoLab Group to commission *Assembly Line*, a composite self-portrait by so-called "MTurks"—workers in Amazon's online crowdsourcing marketplace platform. The project used an algorithm to merge thousands of selfies taken by the workers into a sculptural form, allowing them to reclaim facial recognition from the invisible workings of the digital economy and to morph it into a collectively produced work of art. The profits from any copies sold are redistributed among the workers through a bonus system, "thus connecting an anonymous rung of the digital precariat," in the artist's words, "with the surplus value extracted from the luxury commodities circulating in the art market."<sup>2</sup>

Moving beyond the background research that is traditional in artistic production as well as the notion of artistic research tied to systems of assessment and criteria for advanced degrees in the arts, these projects and others described in the following pages mobilize translational forms of knowledge. Their multimodal expression has inspired CAST itself to search for new platforms and adopt an intentionally hybrid structure, functioning in some respects as would a humanities center (when organizing symposia and publishing books), as a presenting institution (when producing *MIT Sounding* and other performances), as a curatorial unit (when implementing artist residencies), and as a research center (when facilitating collaborations across faculties and partnerships).

We anticipate ever-more adventurous forays into new media and materials as expanded facilities at MIT become available in the near future—for experimenting with electronic music, virtual visual worlds, computational fabrication, and nanoscale technology. Our goal is for CAST to offer multiple opportunities to infuse an artistic impulse in these exciting and uncharted domains.



Evan Ziporyn  
Kenan Sahin (1963) Distinguished  
Professor of Music  
Faculty Director, CAST  
Artistic Director, *MIT Sounding*



Leila W. Kinney  
Executive Director of Arts Initiatives  
Executive Director, CAST

<sup>1</sup> Amelia Mason, "Reaching Tech's Limit, YouTube Phenom Jacob Collier Seeks A Human Touch," WBUR The ARTery, December 5, 2019.

<sup>2</sup> See artist's statement at <https://openspace.sfmoma.org/2018/03/assembly-line-animal-internet/>.



CAST Mission Statement

The MIT Center for Art, Science & Technology (CAST) creates new opportunities for art, science, and technology to thrive as interrelated, mutually informing modes of exploration, knowledge, and discovery. CAST’s multidisciplinary platform presents performing and visual arts programs, supports research projects for artists working with science and engineering labs, and sponsors symposia, classes, workshops, design studios, lectures, and publications.

CAST Activities

Cross-Disciplinary Classes

Soliciting and supporting cross-disciplinary curricular initiatives that integrate the arts into the core curriculum and create new artistic work, materials, media, and technologies for artistic expression.

Public Outreach

Disseminating to the public the creative and intellectual production supported by the Center through performances, exhibitions, installations, videos, publications, and a biennial symposium.

2012–19 Program Statistics

- 6,500+ students enrolled in classes or participated in a workshop, symposium, or performance.
- 130+ MIT faculty and staff representing all five schools collaborated with CAST.
- 90+ Visiting Artists engaged with students during 230+ class visits and individual meetings.

Funders

The Center for Art, Science & Technology is funded in part through 2024 by a grant from the Andrew W. Mellon Foundation. Additional support comes from Dasha Zhukova; Michael and Sonja Koerner; the late Fay Chandler; Ron and Carol Kurtz; Joan and Paul Gluck; Terry and Rick Stone; Eugene Stark; Peter Athens; and other individual benefactors. MIT support comes from Philip S. Khoury, Associate Provost with responsibility for the arts; Melissa Nobles, Kenan Sahin Dean, School of Humanities, Arts and Social Sciences; Hashim Sarkis, Dean of the School of Architecture and Planning; and the Council for the Arts at MIT.

Residencies

Producing a Visiting Artists program that emphasizes research and development of creative work, cross-fertilization among disciplines, and extensive interaction with MIT faculty, students, and researchers.

Support

Assisting in the presentation and curation of art relevant to the research of engineers, scientists, and the MIT community as a whole; supporting faculty, students, and postdoctoral researchers whose work advances the mission of the Center.

Partners at MIT

Office of the Provost

List Visual Arts Center  
MIT Museum

Office of the Vice President for Research

MIT.nano

School of Architecture and Planning (SA+P)

Architecture  
Art, Culture and Technology  
Community Innovators Lab  
History, Theory and Criticism of Architecture and Art  
Media Lab  
Urban Studies and Planning

School of Engineering

Aeronautics and Astronautics  
Civil and Environmental Engineering  
Computer Science and Artificial Intelligence Laboratory  
Electrical Engineering and Computer Science  
Glass Lab  
Materials Science and Engineering  
Mechanical Engineering

School of Humanities, Arts and Social Sciences (SHASS)

Anthropology  
Comparative Media Studies/ Writing  
Global Studies and Languages  
History  
Linguistics  
Literature  
Music and Theater Arts  
Science, Technology and Society

School of Science

Biology  
Brain and Cognitive Science  
Earth, Atmospheric and Planetary Sciences  
Edgerton Center  
Laboratory for Multiscale Regenerative Technologies  
McGovern Institute  
Physics

Sloan School of Management

Martin Trust Center for MIT Entrepreneurship  
MIT Leadership Center

Student Life

Concourse Program  
Hillel Program





# New Media, Methods, and Materials

Projects defined by rich exploration

## IN THIS SECTION

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*Diversifying Space*

Matthew Ritchie  
Explores AI and Art

*Dessert of the Real*

*The Immortals*

*The Swamp School*

A 3D model of a *Cyrtophora citricola* tent-web that serves as a 2,300-string modulating drone harp. A laughing AI. A composite self-portrait generated by an algorithm that amalgamated thousands of selfies taken by anonymous workers. These are some of the unlikely materials used in the artworks described in these pages.

The exploration of new media, methods, and materials for artistic expression often is at the core of CAST projects. Rather than being an end in itself for these artists, the pursuit of new technology is a natural byproduct of being immersed in a working environment alongside many of the world’s leading science and engineering labs. The “Frontiers in Science, Technology, and the Arts Symposium” that CAST co-sponsored with MIT.nano recognized the great potential of this natural alliance among artists, scientists, and engineers at MIT around experimenting with materials, testing them to failure, and bending the expressive capacities of technology to new uses.

In *Gen Studio*, Visiting Artist Matthew Ritchie and Sarah Schwettmann used Microsoft AI to run generative adversarial networks (GANs) on the Metropolitan Museum of Art’s encyclopedic Open Access collection. In a contemporary variation upon the Surrealist “Exquisite Corpse” combinatory exercise and the Situationist “dérive” (psychogeographical walks or encounters in urban space), the GANs enable exploration of a dream-like series of images from the Met’s collection, which surfaces similar features, visual anomalies, and unanticipated syntheses of objects from different periods and cultures.

For linguist Michel DeGraff and computational poet Nick Montfort, the opportunity to work with the singer, songwriter, and poet Roosevelt Saillant, also known as BIC (Brain. Intelligence. Creativity.), enabled both the preservation of Kreyòl, the Haitian Creole language, and the cross-pollination of it with poetry, computer science, rap, and folk music. They facilitated opportunities for the MIT campus and the broader Haitian community in and around Boston to experience new cultural expressions of digital poetry and music making in Kreyòl.

Rather than simply offering solutions to existing problems, dynamic collaborations such as these are expanding artistic expression, and the best of them, as in these examples, expand a circuit of creativity from artistic expression back into new questions for computer science, engineering, linguistics, materials science, and other domains.

Image: The launch of *Gen Studio* at the Metropolitan Museum of Art of New York City, February 2019. Credit: Victor Castro.



# Filament at the New York Philharmonic

Megaphones storm the concert hall

/Performance: *Filament: Megaphones at the New York Philharmonic*,  
David Geffen Hall, September 21, 22, and 25, 2018



The New York Philharmonic opened its 2018–19 season with two familiar warhorses—Stravinsky’s *The Rite of Spring* and Beethoven’s “Emperor” Concerto—and something completely unexpected.

*Filament: Megaphones at the New York Philharmonic*, funded by a 2018 Fay Chandler Creativity Grant, featured 20 custom, robotically printed megaphones designed by Brandon Clifford, who is an Assistant Professor of Architecture and Director of Matter Design. Featuring 15 choir members, the work was composed by Ashley Fure, Dartmouth College Assistant Professor of Music.

**“I’m trying to pull us into the present, to feel our bodies.”**  
– Ashley Fure

And what sound did the trumpeting megaphones make? Their unique shapes created a range of sonics, giving each singer agency to direct the imprint of their voice.

Spread out across David Geffen Hall, the goal was to have the megaphones break with the symphony’s proscenium tradition, surrounding the audience in what the composer and architect saw as a democratization of the New York Philharmonic.

Take that, *Also Sprach Zarathustra*.

Images: (left) *Filament* performed at the New York Philharmonic. Credit: Nina Westervelt/*The New York Times*. (right, top) Credit: Chris Lee. (right) Credit: Michelle V. Agins/*The New York Times*.



Brandon Clifford,  
Assistant Professor  
of Architecture, MIT  
and Director of  
Matter Design

Ashley Fure, Assistant  
Professor of Music,  
Dartmouth College



# ARTificial Intelligence: The Laughing Room

A guy walks into a library...

/Installation: *The Laughing Room*, Cambridge Public Library, November 16–18, 2018

/Installation: *The Control Room*, MIT Hayden Library, November 16–18, 2018

/Installation: *The Laughing Room*, Live YouTube Stream, November 17, 2018

/Lecture: Artist “Talk Back” with Jonny Sun and Friends, December 17, 2018

```
(('probability not funny', 0.351766632))
('Final guess: funny is ', True)
('Text', u" how close you came to making the last I'm going to let you next weekend")
('Confidence of what was said:', 0.7622181177139282)
('Tokenized: ', [[58, 618, 2, 256, 3, 340, 4, 187, 15, 37, 3, 189, 2, 207, 1432]])
Padded, fitting model format
('Prediction shape: ', (1, 319))
0.6406733
tracks/tier1/track1.mp3
('probability funny', 0.6406733)
('probability not funny', 0.35932672)
('Final guess: funny is ', True)
('Text', u" that's so interesting")
('Confidence of what was said:', 0.6517391800880432)
('Tokenized: ', [[42, 19, 802]])
Padded, fitting model format
('Prediction shape: ', (1, 319))
0.64321405
tracks/tier1/track1.mp3
('probability funny', 0.64321405)
('probability not funny', 0.35678595)
```



What happens when artificial intelligence decides what's funny? Sound and democracy played prominently in *The Laughing Room*, an installation presented this fall by a team that included author and illustrator Jonny Sun and Professor of Literature Stephanie Frampton, as part of her project called ARTificial Intelligence, a collaboration between the MIT Libraries and the Cambridge Public Library.

“It was important for us to set the installations where they could spark an open conversation at the intersection of art and science,” says Frampton.

Funded in part by a Fay Chandler Creativity Grant, *The Laughing Room* invited library visitors into a set that evoked a 1980s television sitcom living room, where they then shared stories or jokes that were analyzed by the room's AI. If deemed funny, the AI responded with a recorded laugh track.

“Half of the people said, ‘That was fun.’ The rest said, ‘That was creepy.’”

– Jonny Sun

*The Laughing Room*—as well as its algorithmic calculations—were broadcast on screens in *The Control Room*, a companion installation at the MIT Hayden Library.

The exhibit drew mixed reactions from the more than 500 participants. “There is a tension around technology, between what it allows you to do and the price we pay for it, which is usually our privacy,” says Sun.

In keeping with the sitcom theme, Sun described *The Laughing Room* as a “pilot.” The plan is to tweak the algorithm and build on what they’ve learned, as a means to explore technology’s increasingly social and cultural roles.

“This extraordinary collaboration has shown us how much interest there is in this kind of programming and how much energy can come from using the libraries in new ways,” said Frampton.

Images: (left) Screenshot of *The Laughing Room* algorithm. Credit: metaLAB at Harvard. (left, bottom) Hanna Davis and Jonny Sun sit in *The Laughing Room*. Credit: metaLAB at Harvard. (above) Screenshot of live YouTube stream.

Hanna Davis, Programmer and  
Generative Musician

Stephanie Frampton, Associate  
Professor of Literature, MIT

Chris Sun, Project Manager

Jonny Sun, PhD Candidate, Department of  
Urban Studies and Planning, MIT



# Frontiers in Science, Technology, and the Arts

## Transformation through collaboration

/Symposium: “Frontiers in Science, Technology, and the Arts,” February 26, 2019



“Frontiers in Science, Technology, and the Arts,” an afternoon symposium co-organized by the MIT Center for Art, Science & Technology (CAST) and MIT.nano, brought together artists, scientists, and researchers to explore the intersection of trailblazing science and technology with frontiers in artistic practice.

“In convening this symposium, we hope to open up an entirely new world of materials and media,” said Leila Kinney, Executive Director of Arts Initiatives and MIT CAST, “building on MIT’s long legacy of imaginative attempts to integrate the arts into an institution principally focused on science and engineering, and of bringing artists into its research labs.”

You could say the event sprang from a grain of sand. When artist Vik Muniz was invited to MIT by Marcelo Coelho, now a Lecturer in the Department of Architecture and an interaction designer, they created the work of art, *Sandcastle*, by etching a drawing of a sandcastle on a grain of sand using an electron microscope. This work inspired Vladimir Bulović, Director of MIT.nano, to consider the possibilities that nanotechnology could offer for artistic practice.

“At MIT.nano, we’re always looking to reach across the boundaries of what you might have seen before,” Bulović told symposium attendees. Now housed in a new interdisciplinary facility at the heart of campus, MIT.nano will make its tools and new discoveries about materials available for experimentation and exploration by artists at MIT and beyond.

Culling from this rich collaboration, the symposium explored new frontiers from four perspectives: computing and art; innovation and entrepreneurship in art and design; new materials and art; and collaborations in art, science, and technology.

**“If representation is epistemological, how do we know it means something?”**  
– Matthew Ritchie

Presenters from each of these areas included Ekene Ijeoma, Assistant Professor of Media Arts and Sciences, MIT Media Lab, who spoke about “Social Transformation through Data-Informed Art”; Skylar Tibbits, Assistant Professor of Design Research, MIT Architecture,

who presented on “Self-Assembling and Programmable Materials”; John Hart, Associate Professor of Mechanical Engineering at MIT, who presented “Nanobama: Reflections on a Chain Reaction of Science, Art, and Popular Interest”; and Matthew Ritchie, Dasha Zhukova Distinguished Visiting Artist, CAST, whose presentation, “Turbulence in Porous Media,” solicited the audience for their input by asking, “How can we model scaling across informational structures?”

“Turbulence is an unsolved problem,” noted Ritchie. “That leaves a little bit of space for me, as an artist, to step in and ask an interesting question.”

In his closing remarks, Bulović encouraged these cross-disciplinary inquiries, while pointing to the opportunities ahead.

“It’s about exploring the dichotomy between perfect and imperfect, and we always have to manage it,” said Bulović. “Those scaled understandings will allow us to take the next steps toward discovery.”

Images: (left and above) Philip S. Khoury, Matthew Ritchie, Sarah Schwettmann, and Markus Buehler at the “MIT Collaborations in Art, Science, and Technology” roundtable. Credit: Andy Ryan.

**Markus Buehler, Department Head and Jerry McAfee (1940) Professor in Engineering, Department of Civil and Environmental Engineering, MIT**

**Vladimir Bulović, Founding Director of MIT.nano, Professor of Electrical Engineering, and Fariborz Maseeh Chair in Emerging Technology, MIT**

**Leila W. Kinney, Executive Director of Arts Initiatives and CAST, MIT**

**Matthew Ritchie, 2018–20 Dasha Zhukova Distinguished Visiting Artist, CAST, MIT**

**Sarah Schwettmann, PhD Candidate, Department of Brain and Cognitive Sciences, MIT**



# Karin Coonrod Revisits *Judith*

Hail, the female Beowulf!

/Class Visits: Karin Coonrod, March 1–6, 2019

/Performance: *Judith* Work-in-Progress Presentation, Karin Coonrod, March 5, 2019



Karin Coonrod is known for her thoughtful theater productions that re-envision the past. This spring, the innovative theater maker visited MIT to give *Judith*, the medieval heroine, a much-needed reboot. “She’s often portrayed as strategically seductive. But in fact, Judith is a truth-to-power girl.”

In Coonrod’s hands, Judith is transformed into a Hebrew/Anglo-Saxon, modern heroine who is a strong-hearted deliverer of her suffering people. The 10th-century eponymous epic fragment was found in the same manuscript as the heroic poem, *Beowulf*.

The ancient language, which sounded quite familiar to modern ears, was brought to life in a workshop presentation of *Judith*, a music/text/chamber/hybrid/opera. MIT students sang beside soloists from New York, in a musically rich ensemble led by Coonrod’s longtime musical collaborator, composer Paul Vasile.

Throughout her weeklong residency, hosted by Diana Henderson, Professor of Literature, Coonrod engaged with the MIT community as both theater director and researcher. “We are involving Anglo-Saxon students from Arthur Bahr’s classes; musicians and singers from Bill Cutter’s and colleagues’ students; students from Diana’s circle; and students involved at the W97 theater,” noted Coonrod.

**“I believe theater is only good if it is Dionysian.”**

**– Karin Coonrod**

Coonrod and Henderson first worked together on the director’s 2016 production of *The Merchant of Venice*, set in the Venice ghetto. “We share a love of text, flourishing in theatrical expression,” says Coonrod.

“Karin is among the cohort of artistic practitioners who truly love digging deep into scholarship,” says Henderson. “She’s not at all intimidated by the analytic, academic realm that most scholarship inhabits.”

“That’s what I am always after!” admits Coonrod. “*Judith* is all a bit of a wild experiment—I am deeply thrilled to bring it into the light of day with the engagement of the MIT community.”

Images: (left) Performers in the *Judith* Workshop Presentation. Credit: Sham Sthankiya. (top) Karin Coonrod discusses *Judith* with performers. Credit: Sham Sthankiya.

**Karin Coonrod,  
CAST Visiting Artist**

**Diana Henderson,  
Professor of Literature, MIT**



# “Collective Intelligence”

Exploring nonlinear phenomena

/Panel Discussion: “Collective Intelligence,” September 27, 2018



A termite colony. A stock exchange. A beehive. A human society. Each is a complex system of emergent and collective intelligence. For Agnieszka Kurant, they are also fodder for artistic exploration.

The Ida Ely Rubin Artist in Residence visited MIT this fall to analyze how collective intelligence and emergence—in nature and culture—can be applied to creativity and art production, in collaboration with Boris Katz, Principal Research Scientist at the MIT Computer Science and

Artificial Intelligence Laboratory (CSAIL) and Head of the InfoLab Group. Their research will be used to develop crowd-sourced artworks that will be shaped and animated by a new working class—dubbed “anonymous Turks”—of online crowdsourcing marketplace platforms.

**“Collective intelligence provides unprecedented phenomena that are impossible to calculate.”**  
– Agnieszka Kurant



Kurant used crowdsourcing in *The Animal Internet*, her 2017 Signature Hack that featured collectively powered animatronic animals. The project brought together graduate students from computer science, engineering, and the arts, as part of the MIT Hacking Arts Festival. The piece is on display at Open Space, the San Francisco Museum of Modern Art’s online platform.

During her recent fall visit, Kurant took part in a panel discussion, “Collective Intelligence,” moderated by Professor of Digital Media Nick Montfort, to discuss her work as a conceptual interdisciplinary artist.

“Our times are obsessed with algorithmically foreseeing and calculating the future,” notes Kurant. “Yet emergence—the property of the complex systems of collective intelligence—cannot completely be foreseen or computed.”

What exactly is “the economy of the invisible”? It’s where immaterial and imaginary entities, fictions, phantoms, and emergent processes influence political and economic systems. In other words, it’s everywhere.

Images: (left) Agnieszka Kurant’s *Assembly Line*. Credit: Jerry Liu. (top) Caroline A. Jones, Stefan Helmreich, Agnieszka Kurant, Adam Haar Horowitz, and moderator Nick Montfort discuss “Collective Intelligence.” Credit: Harry Bachrach.

Adam Haar Horowitz, PhD  
Candidate, Media Lab, MIT

Stefan Helmreich, Elting E. Morison  
Professor of Anthropology and  
Program Head, MIT

Caroline A. Jones, Professor of the History  
of Art, Department of Architecture

Agnieszka Kurant, Ida Ely Rubin  
Artist in Residence, CAST, MIT

Boris Katz, Principal Research Scientist,  
Computer Science and Artificial Intelligence  
Laboratory (CSAIL); Head of the InfoLab Group

Nick Montfort, Professor of Digital Media, MIT



# Ana Miljački's *Critical Broadcasting Lab*

Creating illumination in dark times

/Public Presentation: *Dimensions of Citizenship*, October 2, 2018

/Experiment: Agit Arch Experiment 1, *Citizenship*, October 13–14, 2018

/Experiment: Agit Arch Experiment 2, (Hacking) *Clickbait Politics*, November 3–4, 2018

/Public Presentation: “How to Read,” November 2, 2018

/Experiment: Agit Arch Experiment 3, *Populism*, November 16–18, 2018

/Roundtable: “Agit Arch Experiments,” December 3, 2018



*Agit. verb: to shake or stir. Arch. noun: short for architecture.*

As historian, curator, and designer, Ana Miljački, Associate Professor of Architecture at MIT, is an agitator against architectural norms. This fall, the Mellon Faculty Fellow and Head of the Master of Architecture program at MIT created *Critical Broadcasting Lab*, a space and platform for the production of discursive interventions in architecture culture. The project, says Miljački, was driven by political and disciplinary urgencies, citing what philosopher Hannah Arendt referred to as “dark times.”

**“Utopia is Here, Just for Today”**  
– A sign that hangs in Ana Miljački's office

The *Critical Broadcasting Lab* broadened the concept of an architectural exhibition in order to rethink architectural norms and serve as a curatorial entity at MIT and beyond. The project launched a series of Agit Arch experiments and interventions throughout the fall. Based around three broad topics—citizenship, clickbait politics,

and populism—the project gave students new ways to intervene in contemporary architectural discourse. These outcomes included “How to Read,” an illustrated lecture on how we can remain responsive on a diet of contemporary media, a “Clickbait Bookmaking” workshop, and “The Freedom Zone,” an exercise that borrowed the abstract visual language of free-trade zones to envision alternate zones of freedom.

As a form of strategic preparation for visualizing and realizing a better and more just future, for and through architecture, *Critical Broadcasting Lab* demonstrated Arendt's heartfelt philosophy, that “even in the darkest of times, we have the right to expect some illumination....”

Images: (left) *Card Game* designed and presented by Ingrid Dobloug Roede, Rodrigo Escandón Cesarman, Nof Nathansohn, Melissa Gutiérrez Soto, and Nitzan Zilberman. Credit: Justin Knight. (top) *The @realkinn* project. Credit: Justin Knight. (right) *Agit Arch*, a series of micro exhibitions that instigate discussion and aim to critique and probe contemporary architecture and its political haunts. Credit: David Sundberg/Esto.



Ana Miljački,  
Associate  
Professor of  
Architecture, MIT



# Diversifying Space

A boundaryless exploration

/Class: Prototyping Our Sci-Fi Space Future, MAS.S64, Fall 2018

/Class: Space Exploration and Interplanetary Habitation, STS.058, Spring 2019

/Symposium: "Beyond the Cradle: Envisioning a New Space Age,"  
Space and the Arts Panel, March 14, 2019

/Lecture: "Space Traveling with Agnes Meyer-Brandis," March 15, 2019



Can art and science coexist in outer space, and what happens when they share the same orbit? *Diversifying Space* explored the evolving realm of space exploration with an array of artists and scientists during the fall and spring semesters. The far-reaching project was organized by 2019 Mellon Faculty Grant recipient Joseph A. Paradiso, Director of the MIT Media Lab Responsive Environments research group and faculty mentor of the MIT Media Lab's Space Exploration Initiative.

**"Artists and cultural practitioners can disrupt the paradigms of space travel."**

– Joseph A. Paradiso

*Diversifying Space* centered around an adventurous class: Space Exploration and Interplanetary Habitation, taught by Marie-Pier Boucher, which explored the social impact of science and technology at an interplanetary level. *Diversifying Space* also traveled into space from the perspective of the artist. A weeklong residency with the German installation artist Agnes Meyer-Brandis featured a performative V-flying lesson and lecture.

Then came the third annual "Beyond the Cradle: Envisioning a New Space Age," a daylong gathering of scientists, engineers, artists, and designers. Presented by the MIT Media Lab Space Exploration Initiative, this year's "Beyond the Cradle" marked the 50th anniversary year of the Apollo 11 moon landing. Focusing on the

next 50 years of space exploration, the event's workshops explored "Creative Movement in Zero G," "Martian Biomanufacturing," and "Space Health Wearables." Among the numerous discussions was a panel on "Space in the Arts" with Meyer-Brandis, CAST Visiting Artist Tomás Saraceno, musician Laurie Anderson, and artist Josh Simpson. Their far-reaching conversation explored space as a place of unlimited imagination and a realm for new interventions.

Images: Students in STS.058 Space Exploration and Interplanetary Habitation take V-flying lessons with visiting artist Agnes Meyer-Brandis. (left and right) Credit: Heidi Erickson. (middle) Credit: Lydia Brosnahan.

Marie-Pier Boucher,  
CAST Mellon Postdoctoral  
Research Fellow, MIT

Agnes Meyer-Brandis,  
CAST Visiting Artist

Joseph A. Paradiso,  
Director, Responsive  
Environments, Media Lab, MIT

Xin Liu, Arts Curator, Space  
Exploration Initiative, Media Lab, MIT



# Matthew Ritchie Explores AI and Art

A journey into existence and scale

/Workshop: “Met x Microsoft x MIT Hackathon,” New England Research & Development (NERD) Center, December 12 and 13, 2018

/Installation: *Met x Microsoft x MIT Prototype Reveal*, the Metropolitan Museum of Art, New York City, February 4, 2019



Matthew Ritchie’s provocative explorations of art and science are well known at MIT, such as his 2002 site-specific installation at the Zesiger Center. The contemporary artist returned to campus in fall 2019 as the 2018–20 Dasha Zhukova Distinguished Visiting Artist, embarking on an exploration of technology’s ever-expanding role in our culture and its relationship to art.

An overriding question that interests Ritchie is, “How can new technologies of picture making expand the limits of what we can imagine next? What is emerging, and what remains hidden?”

**“As an artist, I don’t have any solutions. I’ve just got questions.”**  
– Matthew Ritchie

Those inquiries aligned with a project called “Met x Microsoft x MIT.” Launched in December, the two-day hackathon session explored how artificial intelligence could connect people to art, as part of a collaboration among MIT designers, researchers, and students with the Metropolitan Museum of Art and Microsoft.

“Gen Studio at the Met proposed a dynamic mapping method for using AI and large GANs to provide historically guided art editing and creating tools for the public,” reports Ritchie. Resulting in five AI prototypes, the project tapped a select group of students and faculty led by

the MIT Open Learning and the Knowledge Futures Group, who worked in the Garage space at Microsoft’s New England Research & Development (NERD) center.

“This is a truly special, radical moment, like the Renaissance,” says Ritchie. “So, we should all enjoy being part of a unique moment of human transformation together, and kind of go for its most difficult problems.”

The cross-disciplinary collaboration became a starting point for Ritchie’s forthcoming project, an immersive, performative VR epic tentatively entitled *Invisible College* to be unveiled in academic year 2019–20.

Images: (left) *Gen Studio* is presented at the *Met x Microsoft x MIT Prototype Reveal* event in the Great Hall of the Met Fifth Avenue, February 2019. Credit: Victor Castro. (top) Participants and Matthew Ritchie at the hackathon. Credit: Natasha Moustache/Listen.

**Matthew Ritchie, 2018–20  
Dasha Zhukova Distinguished  
Visiting Artist, CAST, MIT**

**Metropolitan Museum of Art**

**Microsoft**



# Dessert of the Real

Vision in Art and Neuroscience

/Class: Vision in Art and Neuroscience 9.S52/9.S916, Spring 2019

/Exhibition: *Dessert of the Real*, MIT Museum Studio and Compton Gallery, Spring 2019

/Symposium: "Interstitial Illumination,"  
MIT Museum Studio and Compton Gallery, April 2019



*What is the nature of the human relationship to the world? The cross-disciplinary course, Vision in Art and Neuroscience 9.S252/9.S916, proposes that this relationship is fundamentally creative. Led by Pawan Sinha, joined by Seth Riskin and Sarah Schwettmann, the course provides students the opportunity to probe the perceiver's experience of the structure-generating process—perceiving perception itself—by focusing on the experiential as well as the experimental.*

*Supported by a CAST faculty grant for the past two years, Vision in Art and Neuroscience has attracted a broad and enthusiastic community at MIT and beyond. In an interview with CAST, Schwettmann explains how the study of visual perception can translate students' creativity across domains.*

As instructors, we face the pedagogical question: What exercises, in the studio, can evoke so striking an experience of students' own perception that cutting-edge research takes on new meaning, understood in the immediacy of seeing?

**"As artists, students learn to create work through their own perceptual processing."**

**— Sarah Schwettmann**

We work with light directly, from introducing a single pinpoint of light into an otherwise completely dark room to building intricate environments using programmable electronics. The progression of the course modules follows the hierarchy of visual processing in the brain, which builds increasingly complex interpretations of visual inputs, from brightness and edges to depth, color, and recognizable form.

Students then translate their findings into experimental approaches in the studio. They take this work into their own hands, in small groups and individually, culminating in final projects for exhibition, such as *Dessert of the Real*, our second exhibition. They truly are a highlight of the course.

What we're doing has resonated across disciplines: In addition to neuroscience, we have students and researchers joining us from computer science, mechanical engineering, mathematics, the Media Lab, and ACT (the Program in Art, Culture and Technology). The course is growing into something larger, a community of practice interested in applying the scientific methodology we develop to study the world, to probe experience, and to articulate models for its generation and replication.

Images: (left) Seth Riskin gives a demonstration to students in Vision in Art and Neuroscience using light and lenses. Credit: Heidi Erickson. (top) Student project displayed in the *Dessert of the Real* exhibition in the MIT Museum Studio. Credit: Heidi Erickson.

**Seth Riskin, Co-Director,  
MIT Museum Studio**

**Sarah Schwettmann, PhD  
Candidate, Department of Brain and  
Cognitive Sciences, MIT**

**Pawan Sinha, Professor, Vision and  
Computational Neuroscience, Department  
of Brain and Cognitive Sciences, MIT**



# The Immortals

Tapping theater's ability to transform

/Workshop: "The Immortals," March 11–16, 2019

/Performance: *The Immortals* Staged Reading, MIT Building W97, March 15–16, 2019



Just as an organism will adapt to its surroundings, theater is a transformative experience, using drama to question our self-perception and, sometimes, our take on history. In *The Immortals*, a work in progress presented in spring 2019 by playwright Ken Urban, Senior Lecturer in Music and Theater Arts, MIT theater students experienced theater's transformative capabilities firsthand through the prism of Henrietta Lacks.

Lacks, of course, was an African American woman whose "immortal" cancer cells (HeLa cells) continue to be used in biological research more than 65 years after her death. *The Immortals* tells her story from the perspective of Alice, the only black junior academic in the English department at a mostly white, elite university.

Funded by a Fay Chandler Creativity Grant, the project included a workshop and two staged readings that brought together Urban's playwriting students with theater professionals. The unique opportunity provided a new perspective on theater and an inspiration for the students' own playwriting exercises. Their observations, a few of which are excerpted here, were recorded by the Playwrights' Workshop.

**"As an engineering student, my instincts around the theater world all lie in logistics. I'm finally grasping what it means to connect with the artistic part of the theater."**

**– Kacie Bawiec '19**

**"I learned that, as a playwright, I need to know both the characters and their world inside and out. At the same time, I must allow the director and actors space to interpret the material themselves."**

**– Aidan Driscoll '21**

**"The play made me realize that Henrietta Lacks is a real-world version of Lilith in Octavia Butler's novel, *Dawn*. Lilith's body was also exploited against her will 'for the better of humanity.'"**

**– Gina Han '19**

Images: (left) Workshop participants discuss *The Immortals*. Credit: Melissa Blackall. (right, top) Ken Urban introduces the staged reading of *The Immortals*. Credit: Melissa Blackall. (right) Heather Alicia Simms and Jordan Geiger perform *The Immortals*. Credit: Melissa Blackall.



**Ken Urban,  
Senior Lecturer,  
Music and Theater  
Arts, MIT**



# The Swamp School

A project of imagination and nonmaterial architecture

/Exhibition: The *Swamp* Pavilion, 2018 Venice Architecture Biennale, Gediminas and Nomedas Urbonas, Spring–Fall, 2018



Swamps, nature's fecund wetlands, are desperately trying to tell us something. Their message is of vital urgency, says Gediminas Urbonas, Associate Professor in the MIT Program in Art, Culture and Technology and 2018 Mellon Faculty Grant Recipient.

**“Let's try to envision: How could swamps benefit architecture?”**  
– Gediminas Urbonas

In response, Urbonas created the *Swamp* Pavilion for the 2018 Venice Architecture Biennale, as a means to reframe the perception of the world's swamps as wastelands into living and vital organisms. Highlighting the vital urgency of human cohabitation with other forms of life, the Pavilion housed the *Swamp* School, a platform that invited designers and scholars from MIT and its partner network to conduct performative lectures and workshops for Biennale participants and visitors. The project's third chapter, *Commonism: On Cohabitation*, presented in fall 2018, saw the collaboration of numerous international schools and platforms, including the MIT School of Architecture and Planning.

“Architecture today must embrace the swamp, with its hybridity, complexity, and paradox, as a means to decolonize and de-school itself,” says Urbonas. “The *Swamp* School is where we can learn to change these habits of thought and adapt to the changing environments that are taking place globally.”

Images: (left, top) Nicole L'Huillier collects audio at a Venetian canal. Credit: Gediminas Urbonas. (left, bottom) “Community of Plants” workshop with biologist Remigijus Daubaras. Credit: Gediminas Urbonas. (above) *Swamp* ponchos by Urbonas Studio. Design by Sandra Straukaitė and pattern by Gailė Pranckunaitė. Credit: Nobert Tukaj.

**Gediminas Urbonas, Associate Professor, Program in Art, Culture and Technology, MIT**



# MIT Performing Series

A season of audacious innovation

The 2018–19 inaugural season of *MIT Performing*—the new presenting platform for contemporary performance—launched in the fall, delivering powerful, cutting-edge performances and workshops to the MIT campus community as well as the Greater Boston and New England performance scenes. For its launch, *Performing* made full use of the new state-of-the-art Building W97 to prototype and present research-based artistic practice.

“In a super barebones, super functional way,” says series programmer Jay Scheib, Class of 1949 Professor of Music and Theater Arts, “we developed a performance space, performance studios, a shop—and poof! MIT has a modest but fiercely committed performing arts facility.” With W97 in place, Scheib set off to expand the curricular mission “by creating opportunities for our students to engage with an array of visionary performance makers.”

The fall opened with a visceral bang, presenting *NERVOUS/SYSTEM*, a “synaptic” physical-theater work from the Obie Award-winning interactive theater artist Andrew Schneider, in collaboration with Joshua Higgason, Technical Instructor, Music and Theater Arts. Schneider’s busy residency included class visits, public programs, post-show talkbacks with students, and faculty panels. Following its MIT premiere, *NERVOUS/SYSTEM* moved to the Brooklyn Academy of Music as part of the 2018 New Wave Festival.

And then came three powerhouse women performers—performance artist Adrienne Truscott, multidisciplinary phenom Ayesha Jordan, and Irish actor and Samuel Beckett specialist Lisa Dwan—in February residencies.

*THIS*, Truscott’s boundary-smashing solo work, defied categorization: part memoir, a little bit cabaret, some stand-up, and, of course, all theater. Up next was Jordan, who shared her work in progress, *Line by Line*, featuring alter-ego, Shasta Geaux Pop. “What I adore about Ayesha and her work is how good she is at engaging communities by exploding our assumptions around what it means to be *on stage*,” says Scheib.

Dwan’s lecture-demonstration, “A Body of Beckett,” followed, delivering a highly personal, unabashed look at Beckett’s complicated and sometimes tortured metaphysics, and what it means, says Scheib, “to perform Beckett *alone*,” as a woman.

The genre-smashing season closed with a genre-smashing play: a work-in-progress presentation inspired by Bertolt Brecht’s *In the Jungle of Cities*, directed by Scheib, in collaboration with the student class ensemble of Theater Arts’ Live Cinema Performance 21M.842.

All in all, the season marked an impressive beginning for *MIT Performing*, which Scheib promisingly described as “our first time out.”

## IN THIS SECTION

Andrew Schneider and  
Company: *NERVOUS/SYSTEM*

Adrienne Truscott  
Presents *THIS*

Ayesha Jordan Traverses  
*Line by Line*

Lisa Dwan Embodies  
“A Body of Beckett”

A Work in Progress:  
*In the Jungle of Cities*

Image: Ayesha Jordan performs in MIT Building W97. Credit: Caroline Alden.



# Andrew Schneider and Company: *NERVOUS/SYSTEM*

Rapid-fire existential meditations

*/MIT Performing: NERVOUS/SYSTEM,*  
Andrew Schneider and Company, November 9–11, 2018



Who better to launch the inaugural season of *MIT Performing*—and launch W97, MIT’s new state-of-the-art theater arts facility—than the Obie Award-winning performer and writer Andrew Schneider. The artist’s two-part residency culminated in the premiere of a bold new work, *NERVOUS/SYSTEM*, in collaboration with Joshua Higgason, Technical Instructor, MIT Music and Theater Arts. The piece later moved to the Brooklyn Academy of Music for its New York premiere.

**“We try to use technology in the service of manifesting humanity.”**  
– Andrew Schneider

*NERVOUS/SYSTEM* follows the trajectories of seven individual and entirely disparate narratives, referencing scientific concepts from physics and philosophy like loop gravity, eternalism, and block time. For his research, Schneider engaged with faculty and staff across departments, including mechanical engineering, brain and cognitive research, and philosophy. Their discussions provided him a clearer understanding of space, time, and perception while informing the structure and concepts in *NERVOUS/SYSTEM*. They also altered Schneider’s concept of art, science, and technology, and the ways in which those disciplines intersect.

“Being at MIT feels like more of a research laboratory than being in a warehouse space in Brooklyn,” says Schneider. “So we’re thinking about things differently here.”

To convey the relentless bombardment of information that informs our technology-driven modern life, *NERVOUS/SYSTEM* utilized W97’s computer-controlled programming to create lightning-fast blackouts and quicksilver scene changes, at a pace that kept both the technicians and performers on their toes. Yet the technology is simply a vehicle, says Schneider. “With our theater, it may look very hypertechnical—and it is—but it’s in the service of telling these stories in new ways. We’re trying to work on your brain.”

Images: (left, bottom, and right) Andrew Schneider and Company rehearse and perform *NERVOUS/SYSTEM* at MIT Building W97. Credit: Sham Sthankiya.



Andrew Schneider and  
Company, CAST Visiting Artist



# Adrienne Truscott Presents *THIS*

Biography as nonlinear theater

/MIT Performing: *THIS* by Adrienne Truscott, February 7–9, 2019



Choreographer, circus acrobat, dancer, writer, storyteller, comedian, performance artist. For over two decades, Adrienne Truscott has straddled genres, gender politics, or just about anything that moves. The Obie Award and Bessie Award winner brought her subversive one-woman show, *THIS*, to MIT this spring as part of the adventurous inaugural season of *MIT Performing*.

“We have focused on solo artists with large ensemble vision,” says Jay Scheib. That made Truscott, a performer who thinks like a choreographer and is adept at turning linear experience (biography) into nonlinear art, a natural choice to be part of *Performing*.

In truth, Truscott admits, *THIS* wasn’t supposed to exist. “It was made in fairly intense circumstances,” she says. “That’s why it’s called what it’s called. It was made in the heat of—and thus is about—making a piece with the creative financial economy of being an independent artist.”

**“I often only learn what a piece is about after I witness what I made.”**  
– Adrienne Truscott

What the hell was *THIS*? A brash, subtly transgressive nonlinear confessional that deftly held the audience while questioning its own assumptions. In other words, a theatrical magic act.

Images: (left and right) Adrienne Truscott performs *THIS* in MIT Building W97. Credit: Maggie Hall.

Adrienne Truscott,  
CAST Visiting Artist



# Ayesha Jordan Traverses *Line by Line*

An alter-ego reframes cultural borders

*MIT Performing: Line by Line*, a Work-in-Progress Showing by Ayesha Jordan, February 15, 2019



Since when does a Glamazon hip-hop pop icon explore themes related to the excavation of heritage and blended traditions? That would be Ayesha Jordan, the New York City-based multidisciplinary performer and creator, who fearlessly led her alter-ego, Shasta Geaux Pop, into uncharted waters in her work in progress, *Line by Line*, as part of the inaugural season of *MIT Performing*, programmed by Jay Scheib.

**“Shasta is a pop star making fun of herself.”**

**– Ayesha Jordan**

Jordan and Shasta touched down at MIT for a weeklong spring residency, along with composer and artist Justin Hicks. Together they developed the blueprint for a show that will premiere in 2020 at the New York cultural space, The Shed. “MIT has all of these brilliant minds, so we wanted to see how we could get the students to help us with aspects like live video, light, and sound,” says Jordan.

That idea aligned with the concept behind *Performing*, which Scheib has described as “a festival-like presenting program that places lectures and conversations alongside process-based prototypes and iconoclastic productions.”

Both exploratory and interactive, *Line by Line* encouraged the audience to take part in a free-wheeling exploration of Shasta’s Southern roots and their contemporary contradictions. “Shasta is both part of this world and talking about it,” Jordan says. “She makes it safer for the audience to look at themselves.”

Images: (left) *MIT Performing: Line by Line*, a Work-in-Progress showing by Ayesha Jordan and Justin Hicks in MIT Building W97. Credit: Caroline Alden. (right, top) Ayesha Jordan in conversation with participants in *Line by Line*. Credit: Caroline Alden. (right) Justin Hicks in *Line by Line* at MIT. Credit: Caroline Alden.



**Ayesha Jordan,  
CAST Visiting Artist**

**Justin Hicks,  
Composer and Artist**



# Lisa Dwan Embodies “A Body of Beckett”

A master class, performance, and confessional

*/MIT Performing: “A Body of Beckett,” a Lecture/  
Demonstration by Lisa Dwan, February 21, 2019*



Lisa Dwan has been barnstorming the globe, performing Samuel Beckett’s challenging monologues, such as *Not I*, *Footfalls*, and *Rockaby*, defying female-phobic naysayers along the way. As part of the inaugural season of *MIT Performing*, Dwan visited the campus this past spring, presenting “A Body of Beckett,” a “highly personal” lecture/demonstration that provided rich context for Beckett’s demanding work, and Dwan’s often arduous journey as its messenger.

**“Beckett’s voices and souls haunt us today more than ever.”**

– Lisa Dwan

The Irish actress-director’s career has recast the often narrow and mostly male narrative that’s come to be associated with Beckett. “I have found that writers of his ilk are taken to the ivory chambers and made very difficult for people—and young women in particular—to engage with,” Dwan says. “It was always a lads’ club.”

Made rich with Dwan’s firsthand insights and illustrated by her stunning acting, “A Body of Beckett” aligned with Jay Scheib’s mission for *MIT Performing*, as a series that intends to play a valuable role in the intellectual life of its community. Equal parts master class, lecture, performance, and personal diary, “A Body of Beckett” was a rare demonstration of Beckett’s metaphysical and physical brilliance, and an actress’s heroic achievement to give it voice.

Images: (left) Lisa Dwan delivers her lecture/demonstration, “A Body of Beckett,” at MIT. Credit: Leon Yim. (top) Jay Scheib and Lisa Dwan in conversation at MIT. Credit: Leon Yim.

**Lisa Dwan, CAST Visiting Artist**

**Jay Scheib, Class of 1949 Professor of Music and Theater Arts, MIT**



# A Work in Process: *In the Jungle of Cities*

A new performance prototype

*MIT Performing Series: Bertolt Brecht's In the Jungle of Cities, A Work-in-Progress Presentation, May 17, 2019*

A daring inaugural season of *MIT Performing* found a fitting close, inspired by a visionary playwright and a new performance space. *In the Jungle of Cities*, Bertolt Brecht's cautionary tale of success and squalor, capital and pain, was presented as a work-in-progress presentation in W97. The theater became a multi-platform exploration of the virtues of being thick skinned in a production directed by Class of 1949 Professor of Music and Theater Arts Jay Scheib.

**"People remain what they are, even if their faces fall apart."**

— Bertolt Brecht,  
*In the Jungle of Cities*

Performed in collaboration with the student class ensemble of Theater Arts' Live Cinema Performance 21M.842, *In the Jungle of Cities* chronicles a battle of violent determination between a lumber-dealing businessman and an impoverished bookseller.

Internationally known for his genre-defying productions, Scheib has a penchant for combining daring physicality with new (and used) technologies. His West End musical, *Bat Out of Hell*, makes dramatic use of cinema, while *Persona*, an opera based on the Ingmar Bergman film, taps into the intimacy of the camera. The director brought a similarly visceral approach to *In the Jungle of Cities*.

Images: (left, top) *In the Jungle of Cities* in MIT Building W97. Credit: Juliet Dombrowski. (right, bottom) *In the Jungle of Cities*. Credit: Jay Scheib.



Jay Scheib, Class of  
1949 Professor of Music  
and Theater Arts, MIT



# MIT Sounding Series

A season of musical fêtes and inquiries

The fifth season of *MIT Sounding*, curated by Evan Ziporyn, continued its adventurous track record of eclectic music making, featuring music dynamo Jacob Collier, composer John Harbison, rapper BIC from Haiti, and pianist Joel Fan. Another standout of the 2018–19 season—music of a non-human species.

The series kicked off in December with a familiar face. Following his successful 2016 residency, Jacob Collier returned for a two-week residency that culminated in a packed concert in Kresge Hall. Marking the release of Collier's album, *Djesse, Vol. 1*, the joyous evening (both onstage and off) celebrated MIT's thriving musical culture.

How best to follow a global musical phenomenon than with—a spider? *Spider's Canvas/Arachnodrone*, a multisensory performance piece, sonified the strands of a *Cyrtophora citricola* spider web. First performed at the Palais de Tokyo in Paris as part of *ON AIR*, Tomás Saraceno's celebrated exhibition. *Spider's Canvas/Arachnodrone* utilizes a spider web scanning technique originally developed by Saraceno in 2010. The technology was later refined in collaboration with Department Head and Jerry McAfee (1940) Professor in Engineering Markus Buehler, whose team developed a mathematical model of the web that translated its geometry into audible sound.

Featuring live music and a visually stunning projection of the spider's path, *Spider's Canvas/Arachnodrone* had its US premiere in February 2019 at MIT Building W97 and was later displayed in the MIT.nano building in an installation that included pop-up performances.

The eclectic season continued with a concert honoring the 80th birthday of esteemed composer and Institute Professor John Harbison at the New England Conservatory of Music's Jordan Hall. The spring program featured the Boston Modern Orchestra Project, with soloists Dawn Upshaw and Institute Professor Marcus Thompson.

Two spring residencies followed, from two first-rate and very different musicians: the Haitian poet and rapper, BIC, and pianist extraordinaire, Joel Fan. During a whirlwind week, BIC engaged with the MIT community and Boston's Haitian community in a series of performances and workshops. Fan's ambitious residency included a workshop performance of new pieces written for him by MIT students. He later performed one of these compositions as an encore in an adventurous solo piano recital that featured works by MIT faculty.

The diverse lineup, while typical of *Sounding*, shows just how much the series has grown over the years, says Ziporyn. "Five years ago, it was harder to do these collaborations. Now, artists embed at the university and work closely with the students and faculty. That says something about MIT's investment in the arts, and new art particularly."

## IN THIS SECTION

Jacob Collier  
Returns to MIT

*Spider's Canvas/  
Arachnodrone*

BIC Retounen  
pou MIT

Harbison's 80th at  
Jordan Hall

Pianist Joel Fan:  
*Don't Want to Wait*

Image: Joel Fan performs in MIT Killian Hall. Credit: Leon Yim.



# Jacob Collier Returns to MIT

Celebrating community and an album

*/MIT Sounding Performance:  
Djesse, Vol. 1—Jacob Collier at MIT, December 8, 2018*



Following a wildly successful 2016 residency, Jacob Collier returned this fall as part of *MIT Sounding*. As he did before, the agile instrumentalist brought his kinetic energy to campus, creating music in his wake. The fall residency culminated in a joyous musical evening at Kresge Hall in honor of the worldwide release of Collier's *Djesse, Vol. 1*.

The ebullient concert recreated the album's rich textures, fluidly mixing its electronic elements with 200 live performers from MIT ensembles, including the Jacob Collier Orchestra (an ensemble of MIT and Berklee College musicians), Wind Ensemble, Festival Jazz Ensemble, Vocal Jazz Ensemble, Concert Choir, Chamber Chorus, and Rambax Senegalese Drum Ensemble, all accompanied by special lighting and LED video panels that related to the music. At the mix board was Collier's longtime collaborator,

master audio technologist Ben Bloomberg, who developed a new surround-sound algorithm for the program.

**Bloomberg:** For this show, there are no timers—there's no click track. All of the electronic elements are fluid and flexible. They actually follow the music that's happening on stage. That's rare for a big show like this.

**"Usually, when you try something new, people get scared. Here, people get excited."**

**— Jacob Collier**

We always want the technology to feel musical. That's a big part of the philosophy in our research group at the Media Lab. You might have a theater full of crazy wires, lights, tech, and all this stuff. But in the end, you want the musical gesture to be complete across everything that's going on.



**Collier:** The technology and the humans need a kind of bridge between them. I'm bringing this music into this space to be that kind of bridge, where the musicians can play, the technology can be involved, and everything kind of joins together.

**Bloomberg:** One of the special parts about being at MIT is the community. As soon as somebody like Jacob comes to visit, everybody wants to help out.

**Collier:** There aren't a lot of places where we can say, the more the merrier. But at MIT, that makes it really special.

With Ben at the helm, I'm not worried, you know? And I don't think Ben's worried with me at the helm on stage. There's a sense of camaraderie.

**Bloomberg:** We're really trying to push the limits, be a little bit risky, and do some things that will make the arena tour guys a little nervous! That's what this is all about.

Images: (left) Jacob Collier performs as Fred Harris conducts the MIT Wind and Jazz Ensemble with the Jacob Collier Orchestra. Credit: Justin Knight. (top) Ben Bloomberg manages the soundboard at the concert. Credit: Justin Knight.

**Ben Bloomberg, PhD Candidate,  
Opera of the Future, Media Lab, MIT**

**Jacob Collier, CAST Visiting Artist**

**Frederick Harris, Jr., Director,  
Wind and Jazz Ensembles,  
Music and Theater Arts, MIT**



# Spider's Canvas/Arachnodrone

Sonifying the arachnid's strands

/MIT Sounding Performance: *Spider's Canvas/Arachnodrone*, February 16–18, 2019

/Installation and Pop-Up Performances: *Spider's Canvas/Arachnodrone*, MIT.nano Emersion Lab, February–June, 2019



The quiet spider web was given center stage this spring in *Spider's Canvas/Arachnodrone*. The arachno-inspired work, which received its US premiere as part of *MIT Sounding*, was first performed at Tomás Saraceno's acclaimed exhibition, *ON AIR*, at the Palais de Tokyo in Paris. It also became an installation (with pop-up performances) in the MIT.nano building from March to June, 2019.

Based on research on spider webs from MIT's Laboratory for Atomistic and Molecular Mechanics (LAMM), Su, Buehler, and Ziporyn produced a complex, digital audio-visual musical instrument, activated by Su, who "drives" the performers and audience through the spider's web.

**"People found themselves in the middle of the sound, the web, and the room."**

– Ian Hattwick

"By creating an environment in which the spider's web, through its sonified expression, can interact directly with humans, we can enter the nexus of materialized sound and sonified material," says Buehler.

The project was a result of myriad interactions between different disciplines that went back years. "I recall when Tomás first brought a

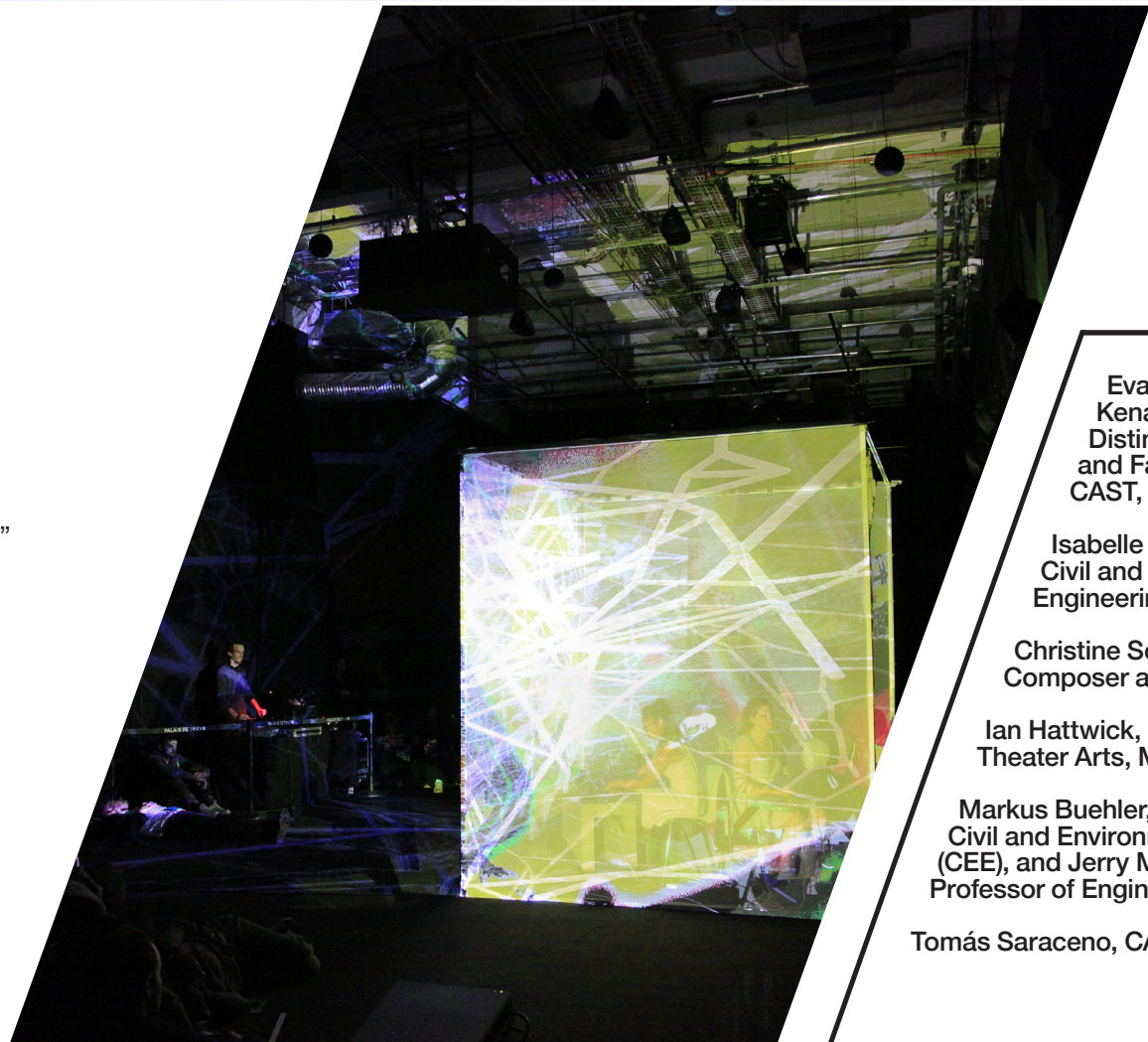
few *Cyrtophora citricola* spiders to our lab. It was truly exciting," adds Buehler. "We created a computer model of the data based on his tomographic method that used a laser to scan a three-dimensional web."

For Saraceno, a longtime CAST Visiting Artist, the piece "is another example of how the spider web scan allows us to be immersed in the spider's unique vibratory sensory *Umwelt*—offering never-before-seen insights into invertebrate architectures."

"It was Tomás's energy and vision that originally got me interested in this," says Ziporyn. "But that would have remained a dream if Professor Buehler and his team hadn't been equally inspired and able to take it in different directions."

*Spider's Canvas/Arachnodrone* will continue to evolve, notes Ziporyn. "Once we figure out how to make a spider-sensitive trackpad, we'll have a fifth player in the band."

Images: (left, top) Christine Southworth, Isabelle Su, Ian Hattwick, Caroline A. Jones, and Evan Ziporyn in discussion after the performance at MIT. (top, right) Isabelle Su plays the sonified webs. Credit: Auralie Cenno/Palais de Tokyo. (right) *Spider's Canvas/Arachnodrone* performance at Palais de Tokyo in Paris, France. Credit: Aurelie Cenno/Palais de Tokyo.



Evan Ziporyn,  
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Professor of Engineering, MIT

Tomás Saraceno, CAST Visiting Artist



# BIC *Retounen pou* MIT

Advancing Kreyòl language through culture

/Workshop: *Tout Istwa Se Istwa: Cultural Story Machines*, April 2, 2019

/Performance: *Karaoke Kreyòl and BIC*, Brothers Kafe Kreyòl, April 3, 2019

/Workshop: “*Vwajay* Movement Workshop with Jean Appolon,” April 5, 2019

/MIT Sounding Performance: *BIC in Concert, Featuring Jean Appolon Expressions Dance Company*, April 5, 2019



Can artistic expression generate social change? Most certainly, says Haitian poet and rapper BIC. A recognized proponent of the Haitian Kreyòl language, BIC (Roosevelt Saillant) collaborated with more than 200 students, musicians, and dancers from MIT during a busy weeklong spring residency featuring improvisational workshops with MIT’s Senegalese Drum Ensemble, Rambax, and with local Haitian dance troupe, Jean Appolon Expressions, and an evening of karaoke Kreyòl with Boston’s vibrant Haitian community.

BIC spoke with collaborator Michel DeGraff, Professor of Linguistics, to discuss the role of art, language, and culture in mobilizing social change.

**DeGraff:** You came to MIT in 2017 and worked with me and Professor of Digital Media Nick Montfort to create digital literary art in Kreyòl. It was important to have you return.

**BIC:** It was really a huge week for me, in terms of meeting people and knowing people better, especially at MIT.

**“Music is the language that everyone speaks.”**

– BIC

**DeGraff:** We have students from the Caribbean, from Africa, from Asia. And the issues in our discussions were the same as in Haiti, in terms of language inequities, social class, and how language and culture can be used as proxies for division.

You so clearly use your own life in Haiti to address these issues that are the same everywhere. Language can be used for both domination and oppression, but it can also be used for liberation.

**BIC:** I don’t want people to think that the only language I would like them to speak is Kreyòl. Absolutely not. Speak whatever language you can. But if we want to educate our children, educate them in the language that they understand. When it comes to Haiti’s education system, this is Kreyòl.

I think education is the number one priority for Haiti to get out of this cycle of impoverishment. I don’t see Haiti as poor—Haiti is impoverished.

**DeGraff:** Exactly. I couldn’t have created a better example to share with students who are trying to understand the challenge of making social change, and then sustaining that change. You’ve shown us ways in which, through language, through art, through culture, we can begin to escape the cycles of impoverishment.

This is the very theme that we try to teach in Black Matters 24.912 and in Creole Language and Caribbean Identities 24.908. What you’re saying is that our language, our culture, is an asset—it is wealth.

**BIC:** That’s it.

Images: (left) BIC performs with Jean Appolon Expressions Dance Company. Credit: Caroline Alden. (top) BIC, Michel DeGraff, and Jean Appolon in discussion following the “*Vwajay* Movement Workshop with Jean Appolon.” Credit: Heidi Erickson.

**BIC, CAST Visiting Artist**

**Michel DeGraff, Professor of Linguistics, MIT**

**Nick Montfort, Professor of Digital Media, MIT**

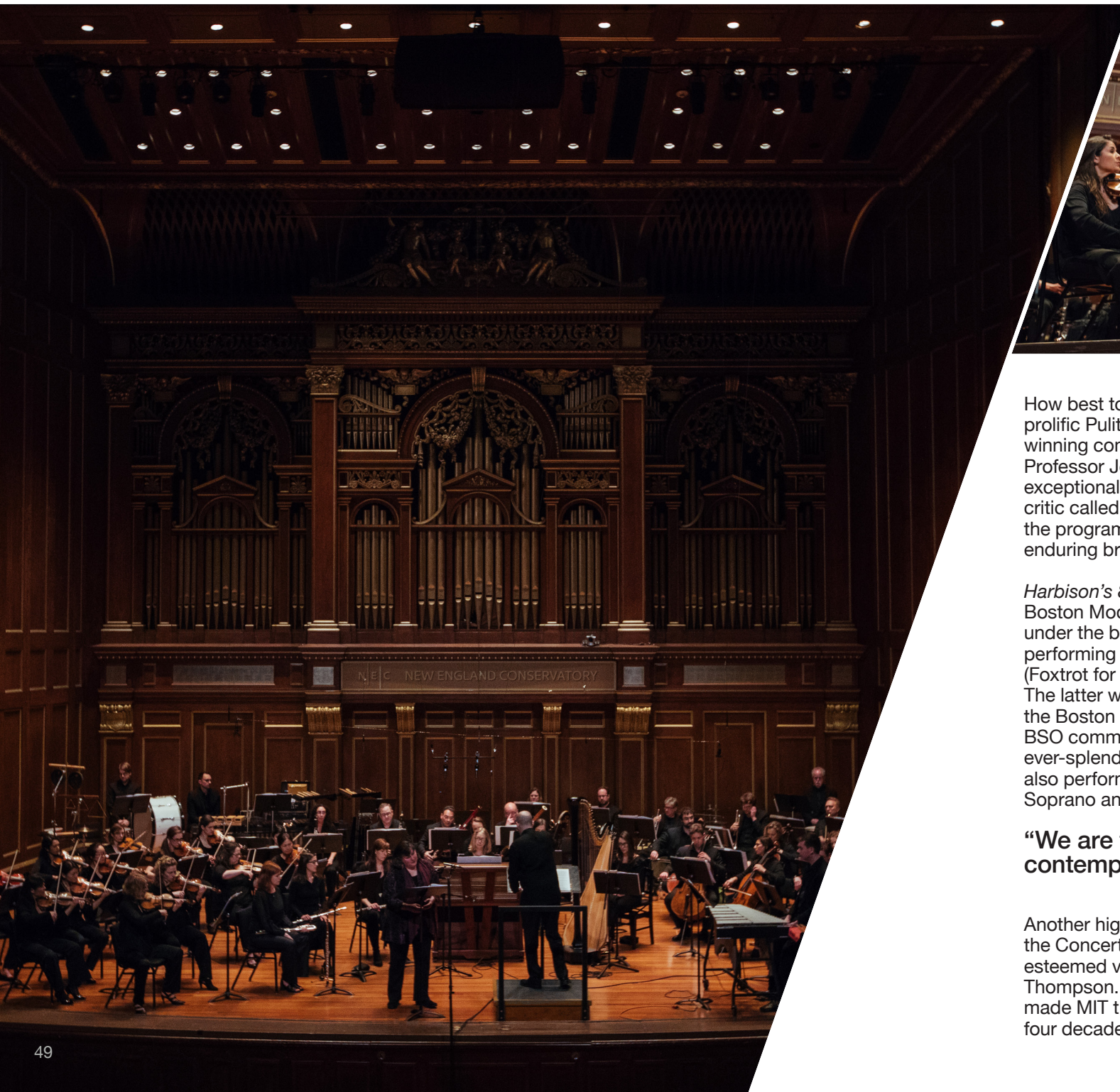
**Jean Appolon Expressions Dance Company**



# Harbison's 80th at Jordan Hall

A celebration of musical riches

/MIT Sounding Performance: Harbison's 80th at Jordan Hall, April 7, 2019



How best to celebrate the 80th birthday of a prolific Pulitzer Prize and MacArthur Award winning composer? In the case of Institute Professor John Harbison, bring together an exceptional orchestra and soloists for what one critic called a landmark concert. A joyful tribute, the program was proof again of Harbison's enduring brilliance.

*Harbison's 80th at Jordan Hall* featured the Boston Modern Orchestra Project (BMOP) under the baton of Artistic Director Gil Rose, performing Harbison's *Remembering Gatsby* (Foxtrot for Orchestra) and *Symphony No. 6*. The latter work, originally commissioned by the Boston Symphony Orchestra (one of nine BSO commissions by Harbison) featured the ever-splendid soprano Dawn Upshaw, who also performed the haunting *Milosz Songs* for Soprano and Orchestra.

**"We are thrilled to celebrate a contemporary music figurehead."**  
– Gil Rose

Another highlight of the historic program was the Concerto for Viola and Orchestra, featuring esteemed violist and Institute Professor Marcus Thompson. Both Harbison and Thompson have made MIT their academic home for more than four decades. Their contributions as teachers and

coaches during that time benefited innumerable MIT students. Harbison's ecumenical approach to music making has had a lasting impact on the music department as well.

"John was a big part of the reason I came here over 25 years ago," says Evan Ziporyn, "and it's even truer today. We'd be a very different place without him."

Images: (left) Gil Rose conducts the Boston Modern Orchestra Project in Jordan Hall. Credit: Caroline Alden. (right) Marcus Thompson performs with Gil Rose and BMOP. Credit: Caroline Alden.

**Boston Modern Orchestra Project (BMOP)**

**John Harbison, Institute Professor, Music, MIT**

**Gil Rose, Artistic Director and Conductor, BMOP**

**Marcus Thompson, Institute Professor, Music, MIT**



# Pianist Joel Fan: *Don't Want to Wait*

A residency of MIT premieres

/Class Visits: "Joel Fan Performs Student Compositions," April 17, 2019

/MIT Sounding Performance: *Don't Want to Wait*, Joel Fan, Solo Piano, April 18, 2019



The 2018–19 *MIT Sounding* season came to an exuberant close with a residency by virtuoso pianist Joel Fan. A fervent champion of new music, Fan's solo recital, entitled *Don't Want to Wait*, featured compositions by MIT faculty, including John Harbison, Keeril Makan, Charles Shadle, and Elena Ruehr.

Hard rock fans may recognize the Van Halen reference in the program's title. In fact, the genesis of *Don't Want to Wait* began two years ago, when Fan reached out to Evan Ziporyn about a novel project he called "Couplets," in which the pianist invited four composer couples to write a piece based on an existing piece of music. Two of those collaborations were featured in his MIT concert, including *Don't Want to Wait* by Ziporyn and Christine Southworth '02 and *Two Thoughts About the Piano* by Bernard Rands and Augusta Read Thomas.

**"The piano is one of the most successful user interfaces in human history."**

– Joel Fan

"I'm fascinated by the way ideas and motifs are transmitted and reinterpreted by composers through the ages," says Fan. "It's a tradition that goes back to the roots of Western music, and that drives music today."

To conclude the program, Fan performed "The Flight of the Dragonfly in Front of the Sun," based on a painting by Joan Miró. The piece was written for the pianist by Margaret Pan, a research scientist in the MIT Department of Earth, Atmospheric and Planetary Sciences. Pan was one in a group of MIT students who wrote compositions for Fan, which he then analyzed and performed in the workshop.

"It was thought-provoking and rewarding to see how such an intelligent and sensitive player reacted to the scores," says Pan. "It made me think of writing a piece as beginning a conversation with a player rather than just making some kind of final statement."

The enthusiasm was mutual. "It's an incredibly exciting opportunity to work with these students and the MIT faculty composers," said Fan of his residency. "They are all exploring the boundaries of piano and of sound, asking what it means to be a pianist in the year 2019."

Images: (left and right) Evan Ziporyn and students in his Music Composition class discuss their compositions with Joel Fan. Credit: Heidi Erickson. (right, bottom) Joel Fan introduces *Don't Want to Wait* at MIT. Credit: Leon Yim.



Joel Fan, CAST  
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# Acknowledgments

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## Special Thanks

CAST Visiting Artists, Faculty Collaborators, and Program Participants

**Program Support and Staff**  
Harry Bachrach, Rachel Bennett, Lydia Brosnahan, Stacy DeBartolo,  
Heidi Erickson, Erin Genereux, Katherine Higgins, Sharon Lacey,  
Sam Magee, Danna Solomon, Leah Talatinian, and Susan Wilson