In Medias Res
Greetings as we enter the 2017-2018 academic year with some great news around the growth and vibrancy of Comparative Media Studies/Writing: we have welcomed three new faculty members into the fold, bringing a new breadth of research and educational opportunities at graduate and undergraduate levels. You’ll learn more about them on the next pages, but a brief introduction is in order here.

Professor Lisa Parks has joined us by way of the University of California, Santa Barbara, and is best known for her work on media infrastructure, notably in the context of satellites and surveillance. We’re pleased to have her teaching two core CMS subjects this fall—CMS.701 “Current Debates in Media” and CMS.796 “Major Media Texts.” Assistant Professor Justin Reich and Professor Eric Klopfer both join us after time formally based in another MIT unit but with deep intellectual and professional ties to CMS/W through their work in education. Klopfer, in fact, has been a principal investigator in our Education Arcade research group since its inception in 2003 and a long-time teacher of subjects cross-listed with CMS and the Department of Urban Studies and Planning, such as “Design and Development of Games for Learning.” Reich meanwhile is the first in CMS/W to incorporate research into massive open online courses; over the years, our faculty and researchers have taught MOOCs and contributed over a 140 subjects’ worth of materials to MIT OpenCourseWare, but Reich looks at large-scale learning systems rather than just online education content. Or as Reich himself puts it, he “looks at the future of learning in a networked world.”

Speaking of firsts, this past year we became the first academic unit at MIT to offer a for-credit class on virtual reality, “Hacking VR: Exploring Oculus and Immersive Media Production,” taught by Professor William Uricchio and visiting scholar Sandra Rodriguez. Uricchio will often describe himself as a history scholar; that’s true but perhaps undersells the impact his work with Sarah Wolozin and the Open Documentary Lab has had on using the history of media change to separate the brilliance of some VR projects from the hype of others.

Becoming a home for faculty VR research has inevitably supported breakthrough work by students. Ainsley Sutherland, ’15, wrote her thesis on how VR can (or fails to) evoke empathy, and filmmaker Deniz Tortum, ’16, an interview with whom you’ll see in this issue, explored the advantages of getting past VR as simply a way to reproduce reality—instead, the materiality of VR provides filmmakers with all sorts of new creative opportunities. (Uricchio was Tortum’s thesis advisor; Sutherland’s advisor was Professor Fox Harrell, whose VR project with Karim Ben-Khelifa, “The Enemy,” was the cover story in the last issue of In Medias Res.)

It’s worth mentioning too that our VR work builds in part on the augmented reality work produced by CMS students more than a decade ago, when computing power couldn’t yet generate today’s immersive experiences. You’ll have a chance to learn more about that history on November 16 at 5pm, just after our graduate program information session, when we host our annual alumni panel: one panelist this year is Dr. Karen Schrier, ’05, who at MIT studied how augmented reality could be incorporated into history education and has taken that work into her career as an associate professor in games and interactive media.

Elsewhere in this year’s magazine, you’ll find recent writing from Professor Harrell, who with recent MIT computer science Ph.D. graduate Chong-U Lim published “Reimagining the Avatar Dream.” They propose a theoretical framework for artificial intelligence to help game designers overcome the biases embedded in how their games generate virtual identities.

Of course biases don’t just exist in virtual worlds. In other new research, lecturer Andrea Wirth worked with MIT colleagues this year to study how the Department of Mechanical Engineering was so successful in achieving gender parity amongst majors. (For context: 13.2% of all U.S. mechanical engineering bachelor degrees went to women, while MIT’s number was 49.5%.) Their big lesson? Prove to female undergraduates that there’s a career waiting for them in mechanical engineering, and do that by foregrounding MIT’s own MechE women. Like most good research, they discovered something counter-intuitive: would-be female mechanical engineering majors at MIT largely aren’t looking for role models to guide them into the major—instead, they simply want to see the “existence proof” that women get jobs in the field and that their studies won’t be for naught.

Meanwhile, you’ll see in this issue that MIT undergraduates keep writing incredible fiction and nonfiction; our research groups, faculty, students, and alums keep racking up achievements, including a “Jeopardy!” college tournament championship by CMS minor Lilly Chin; and CMS/W keeps hosting incredible speakers and other public events.

We should highlight one event in particular: This year’s Julius Schwartz Lecture features Marvel Comics writer and five-time Eisner Award winner Brian Michael Bendis. Previous Schwartz Lecture honorees include major fantasy/sci-fi figures Neil Gaiman and J. Michael Straczynski. That’s on November 9 at 5:30pm. Don’t miss it!

Last, we want to thank those of you who have already donated to MIT’s Campaign for a Better World, which just announced it has raised $589 million in new gifts and pledges in just the past year. Consider supporting our research labs and student fellowships by visiting cmsw.mit.edu/giving.

Edward Schiappa
Over the past ten years, Comparative Media Studies/Writing has grown from what, in effect, was a program of just two faculty members—co-founders Henry Jenkins and William Uricchio—to one of more than twenty. The big jump came in 2013, when the Comparative Media Studies program merged with Writing and Humanistic Studies, bringing science writers like Tom Levenson and Marcia Bartusiak, and creative writers like Helen Lee and Junot Diaz, together with exemplary media scholars like Uricchio, new hires like T.L. Taylor, and appointments shared with other parts of the School of Humanities, Arts, and Social Sciences—making professors like Ian Condry and Jing Wang an essential part of CMS/W life. This year, we’ve grown again. We’re thrilled to introduce Professor Lisa Parks, new to MIT via the University of California, Santa Barbara, and, shifting to us from other parts of MIT, Associate Professor Justin Reich and Professor Eric Klopfer.

“The concept of drone warfare frequently conjures images of video game-like interfaces, where desensitized soldiers sit at a desk moving a joystick, searching for their target from a faraway place. But from Lisa Parks’ perspective, the video game metaphor is a limited view of everything at work with remote warfare.

“It’s not just a video game war,” Parks, who joined Comparative Media Studies/Writing as a professor in 2017, says. “There are also very physical, material things happening affecting the people living in these different parts of the world. The drone war has changed people’s relationship to the sky.”

To Parks, the air itself has become a medium controlled by this kind of warfare.

While much of the field talks about the impacts and implications of the media we consume in the form of television, movies, or social media, Parks takes a different approach—she prefers to study the infrastructures that make this media possible and how an infrastructure itself affects the people around it.

“A lot of people in our field know narrative structure and how to read images and sounds and glean information from those media formats,” she says. “But the electromagnetic spectrum is not unlike a national forest or ocean space, because it’s publicly owned by the American people. It’s up to us as citizens to understand not just the content, but the whole physical system and how it’s organized.”

Parks first became interested in media infrastructures when she was a graduate student at the University of Wisconsin–Madison studying satellites and their relationship with television.

She continued work on the subject at the University of California, Santa Barbara, where she joined the Department of Film and Media Studies in 1998.

The editor of many collections—most recently *Life in the Age of Drone Warfare*—Parks also wants to make sure that her work is also accessible to more general audiences. She enjoys collaborating with artists. With artists from Lebanon and Slovenia, she recently created a multimedia installation piece, called *Spectral Configuration*, designed to have visitors walk through the landscapes of drone war.

She has also contributed to the development of an app that allows people to anonymously engage in verified group communication, a tool that she hopes will be useful for people like journalists working in countries controlled by authoritarian governments. This was done in collaboration with the U.S. State Department through the Flownet Research Project, which conducted research in Mongolia, Turkey, and Zambia.

In CMS/W she has been cultivating her new lab, the Global Media Technologies and Cultures Lab, which studies media technologies in different international contexts and seeks to help underserved and vulnerable communities through its research.

“I think of media systems as public utilities like sewers or waterways,” she says. “They’re just as important, so I think it’s really significant for people to understand where they are, what they’re made of, who owns them, how they’re regulated, and how they matter.”

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1. [amzn.to/2yB1Ldc](amzn.to/2yB1Ldc)
2. [cmswm.it/parks-drone-warfare](cmswm.it/parks-drone-warfare)
Assistant Professor **Justin Reich** was ready to observe a teacher integrating technology into her lesson plan at a school in rural New Hampshire. Her school had bought the laptops, Reich says. She had reserved them. They were charged. All of the kids were logged in. The power was on in the building. The wireless network was working. The projector bulb was working. The screen was working. But when the teacher went to plug the projector into the wall, the electrical socket fell behind the drywall, foiling her attempted lesson plan.

“New technologies have tremendous potential to improve student learning,” Reich says, “but many pieces in a complex system need to be working seamlessly to make this happen.”

Reich is excited about the possibilities that constantly evolving technologies have brought to the learning process over the last few decades. But while many believe that the free and low-cost learning tools becoming available have huge potential to lift up students from low-income families, he’s found that, in truth, this educational technology still benefits the affluent the most.

“I think people underestimate barriers,” Reich says. “Many educators get into the work because they want to create a more equitable world. But educational settings often end up reproducing social inequalities and social hierarchies.”

Through his work as executive director at the MIT Teaching Systems Lab, which now straddles CMS/W and the Office of Digital Learning, Reich works toward finding educational models that incorporate technology in ways that actually do increase quality of education and equity for students.

“All over the world, people are looking to see a shift in classroom teaching practice to more active, engaged, inquiry-based collaborative learning,” he says. “And the only way that will happen is if we can dramatically increase the quantity and quality of teacher learning that’s available.”

Having started off as a wilderness medicine instructor, Reich comes from a hands-on teaching background. Now, he makes sure he and his projects are constantly engaging with real classroom settings. He co-founded EdTechTeacher, a professional learning consultancy that focuses on finding thoughtful ways to use technology in teaching and learning. He also keeps conversations going with classroom instructors through his Education Week-hosted blog, EdTech Researcher.

Reich has also created learning tools for teachers through two online courses, Launching Innovation in Schools, done in collaboration with Peter Senge of the Sloan School of Management, and Design Thinking for Leading and Learning. Both courses were funded by Microsoft with a $650,000 grant.

In CMS/W, he looks to explore the field of learning science and the role that media plays in expanding human capacity, particularly in a civic sense.

“We investigate the complex technology-rich classrooms of the future and the systems that we need to help educators thrive in those settings.”

**FUN AND GAMES**

Professor **Eric Klopfer** experimented with augmented reality long before the days of smartphones and Pokémon Go—he always saw the educational potential for it. He started out equipping kids with PDAs fitted with external GPSs. The earliest games took place at MIT, including “Environmental Detectives,” which was part of Comparative Media Studies’ Games to Teach Project.
Looking outside of MIT, Klopfer and his lab partnered with the Columbus Zoo and Aquarium, using augmented reality to provide supplemental information about endangered species and climate change. The goal of this approach was to engage participants with the less visible issues connected to the zoo. However, he also noted that this digital experience should not take away from the physical experience of people appreciating what is actually around them. In an early iteration of the game, some of the kids trying it approached the lion exhibit as they tracked their progress in the game. But when they shushed a roaring lion only feet away from them as they tried to watch the video playing out on-screen, Klopfer knew something had gone wrong in the design process, and it was back to the drawing board. He noted that “the game should enhance and deepen the experience but allow for appreciating the spontaneous real life experiences that are happening all the time.”

As a pioneer in the world of educational technology, Klopfer is familiar with the process of working out the kinks in his games, simulations, and programming platforms. Later iterations of the zoo-based AR game, based on a platform now known as Taleblazer, worked harder to engage students with their surroundings by asking specific questions of habitat and environment.

“It’s about placing learners in challenging situations,” he says of designing educational games. “It’s about giving them agency and autonomy, but within well-bounded constraints.”

He finds that making educational environments more like games can make learning very intuitive, so he continues to explore the best ways to design educational games and simulations through his work at MIT. He work focuses on both preparing and equipping teachers for the challenges of teaching. As the director of MIT’s Scheller Teacher Education Program and The Education Arcade, he teaches prospective math and science teachers here at MIT, and works with many undergraduate and graduate students to create new playful 21st century interdisciplinary learning experiences. He also has recently been appointed as the co-faculty director of The Abdul Latif Jameel World Education Lab (J-WEL), an incubator for change in education.

One of his most far-reaching endeavors was his involvement with the Massive Open Online Course (MOOC) platform, EdX. “I was initially skeptical of the MOOC platforms for courses outside of the quantitative sciences,” he said. He wasn't sure whether it would be able to serve learners who were interested in topics with more subjective course material. Seeing the potential impact on learners, he spent some time while on sabbatical developing four courses for an educational technology and game development series that ended up attracting 200,000 people. He spent a lot of time working with his team to ensure that these courses really were able to build a supportive learning community.

After 18 years as a professor in MIT’s Department of Urban Studies and Planning, Klopfer recently switched his appointment to Comparative Media Studies/Writing; with its long-standing games studies program, and a growing cadre in educational media, Klopfer sees it as well aligned with his academic goals. He says he appreciates the opportunity for CMS/W’s Game Lab and the Educational Arcade to work with each other in a more consolidated capacity and with new perspectives on learning.

“How do we reach people who don’t already know how to learn?” he wonders, looking forward. “I think that’s going to be an important frontier when trying to expand these tools to a broader audience.”

**RECENT BOOKS**

**Lisa Parks**


**Justin Reich**


*iPads in the Classroom: From Consumption and Curation to Creation.* With Tom Daccord. EdTech Teacher Inc. 2014.

And totally the reason CMS/W brought in Justin Reich: *Baby’s First Book of Zombies.* With Marc Scheff (illustrator). Learning From Zombies. 2015.

**Eric Klopfer**


James Bowie Wilson is a game developer and entrepreneur. He is passionate about emergent gameplay narratives, and expanding the range of voices shaping those narratives.

Growing up in the winter wonderland of Madison, Wisconsin, he attended the University of Southern California, graduating with degrees in Sociology and Interactive Entertainment. His honors thesis explored the impact of gender on game developers in leadership positions. He won recognition as a National Merit Finalist, National Achievement Finalist, USC Presidential Scholar, and USC Renaissance Scholar.

He has worked with wonderful teams to build great games. “Bloom,” the largest project in USC Advanced Games’ history, was featured by Intel, GamesBeat, and VentureBeat; “Howie and Yarla” won an IndieCade award for storytelling and was featured by Fox News; “Hare-y Kare-y,” “Dear Humans,” and “Samsong” each won awards at Global Game Jams. He runs Roll Play Studio, an investor- and accelerator-funded, publisher-supported venture with guidance from industry veterans.

When not dancing across keyboards, James breakdances across concrete as a member of Rhythm Attack, an international dance crew centered in Hong Kong.

Josefina Buschmann’s work lies at the intersection of social sciences and documentary media. She is part of MAFI—Filmic Map of a Country—a Chilean non-profit which promotes and creates participatory documentary projects that foster social reflection and political engagement.

In Chile, she worked as a researcher in social investigations using audio-visual methodologies, exploring issues ranging from the impact of schools’ aesthetics on the quality of education, domestic appropriation and urban mobility, socioenvironmental conflicts, and the relation between art, memory, and landscape in the case of detained and disappeared Mapuche people during Chilean dictatorship.

She studied sociology and filmmaking in Pontificia Universidad Católica de Chile, where later on she worked as a lecturer of visual anthropology.

Libby Falck is an entrepreneur, designer, and multimedia artist. She geeks out about helping communities use design thinking and making to tackle social and environmental issues. She is the co-founder of IDEAco, the writer and lead creator of the K-12 design thinking curriculum the City X Project, the organizer of San Francisco’s first Youth Civic Hackathon, and the writer and designer of Autodesk’s Maker Program Starter Kit. Libby completed her Bachelor’s degree at the University of Wisconsin, where she studied communications and game-based learning. She is also a graduate of the Singularity University Global Solutions Program and the 4.0 Schools Launch Accelerator.

Libby’s current research is focused on using new media to enable individuals to collaboratively redesign public systems, particularly those related to education and governance.

Her mission is to develop tools and experiences that transform issues into actions, empowering more people to design and implement solutions toward building a world that works. Find her on Twitter @LibbyFalck for news on #GBL #digitalscholarship #worldbuilding #designthinking #FutureofWork #civichacking #rethinkhighschool.

Matt Graydon graduated from the University of California, Berkeley, with a degree in film.

He joins CMS after working as a media and communications specialist with the United Nations in Iraq, South Sudan, and Afghanistan, where he focused on migration and refugee issues in both humanitarian emergency and development contexts.

At MIT, Matt works with the Global Media Technologies and Cultures Lab. He is interested in how practices like migration are shaped by new media technologies, the role of the media in conflict, and creative advocacy through emerging technologies such as virtual reality.

Rekha Malhotra is a producer, curator, educator, and activist. She pioneered merging Bhangra and Bollywood sounds with contemporary electronic dance music.

She is the founder of Basement BhangraTM and Bollywood Disco and co-founder of Mutiny Club nights. She was named “Ambassador of Bhangra” by the New York Times.

Rekha was the sound designer for the Tony award-winning Broadway show, “Bridge and Tunnel,” and received a Drama Desk Award nomination for her work on the play “Rafta Rafta” and was the associate producer for the NPR Radio Documentary, “A Feet in Two Worlds.” She has done remixes for artists that range from Meredith Monk to Priyanka Chopra.

Her debut album, DJ Rekha Presents Basement Bhangra, was released on E1 Music and was nominated for the 2008 Plug Awards. She was NYU’s A/P/A Artist-in-Residence for 2006–2007. She has received numerous community awards and in 2009 was inducted into New York City’s Peoples’ Hall of Fame.

Rekha has curated events for Celebrate Brooklyn and Central Park SummerStage NYC. DJ Rekha was a Grand Marshall of the 9th Annual NYC Dance Parade in 2015. In January 2017 she was one of the official DJs for the historic Women’s March on Washington. She serves on the board of Chhaya CDC, an organization of New Yorkers of South Asian origin to advocate for and build economically stable, sustainable, and thriving communities.
Annis Sands is interested in visual media (TV/film), Caribbean history and culture, and streaming technology. She grew up in Elmont, NY, and graduated from Dartmouth College, where she studied history. She wrote her senior honors thesis on the Afro-Caribbean community in post-World War II London.

At MIT, she’s excited to continue her research interests in the Caribbean diaspora and studying questions related to how visual media can provide new opportunities for people in the Caribbean region.

Sultan Sharrief is a trans-media activist, filmmaker, educator, and social entrepreneur. His interest lies at the intersection of art, business, and community impact. He graduated with honors with a B.A. in film/video from the University of Michigan. His senior project was the design of a new filmmaking model, Student EFEX, which partnered metro Detroit youth with University of Michigan students and working professionals to create a three-tiered mentorship program while simultaneously making a film and doing a large scale community impact activation.

The film they made together, his directorial debut, *Bilal’s Stand*, premiered at the Sundance Film Festival in 2010 in the inaugural program of the NEXT category.

He was a two-year fellow at the National Center for Institutional Diversity to further develop his youth program and study ways media impacted access to high education. He led three separate eight-month research projects at University of Michigan studying new media, viral culture, and potential business models for creating new media.


In 2015 he was accepted as one of eight national finalists to the National Black Programming Consortium NBPC360 incubator and, upon winning, had his youth reality show for PBS national funded. The show, *Street Cred*, features Detroit youth learning entertainment-producing skills.

Rachel Thompson earned her bachelor’s degree in Social Anthropology and Comparative Literature from Harvard University. Her honors thesis explored literature’s evolving role in the digital age through an ethnographic study of a west coast-based online literary magazine combined with formal textual analysis. She also co-founded and directed the Harvard Organization for Prison Education and Reform, a network of eight volunteer groups that tutor in prisons across Massachusetts and work on advocacy initiatives relating to mass incarceration and education.

Before joining CMS, Rachel served as coordinator for the Harvard Art Museums’ makerspace, the Materials Lab, as well as the Museums’ Summer Institute for Technical Studies in Art (SITSA). She also worked as Research and Special Projects Associate at the Peabody Essex Museum in Salem, Massachusetts, with a focus on integrated digital media and online storytelling. There Rachel partnered with the Google Cultural Institute to launch the museum’s presence on the Google Arts and Culture platform.

At MIT Rachel works with HyperStudio. She is interested in exploring the potential for emerging learning technologies to disrupt education and create space for new teaching and learning methods. In particular, she hopes to explore how online learning and digital tools can improve and transform prison education.

Rachel has a passion for retrieving the past; in her spare time, she works on restoring film cameras and mid-century modern furniture and really just wants to talk to someone about The Twilight Zone.

Laura Castañón has never managed to be just one thing. While growing up in Needham, Massachusetts, her indulgent parents allowed her to fill their home with collections of insect molts and unidentified bones as well as the deconstructed remains of old TVs and a ship’s radar. She attended Washington University in St. Louis where she earned a major in theatrical design and technology and another in environmental studies, while spending her free time performing story-based comedy. After graduation, her job titles ranged from mad scientist to tull ship bos’n to theatrical carpenter and electrician. She has repaired windsurfers, lectured about climate change, built elaborate golden candelabras, and taught preschoolers how to pet a snail.

Laura sees science writing as the perfect intersection of these disparate interests. Her experiences in performance and education have made her a lively communicator and storyteller, and her dual interests in technology and nature make MIT the ideal place to turn those skills into writing.

Laura has two dogs and a gecko to keep her company through her endeavors. The dogs are a constant delight and remind her that hiking is better than working. The gecko reminds her that she is slightly less important than a piece of banana.
for Science Communicators. He is also an alumnus of the Asia Journalism Fellowship, the Netherlands Fellowship Program, CERN School Philippines, the Silliman University National Writers Workshop, and the Iligan National Writers Workshop. His sci-fi short stories, which often blend Philippine history and mythology, have appeared in local and foreign anthologies. TJ is attending MIT as a Fulbright scholar—like Dolph Lundgren, only a bit less buff.

**Fatima Husain** was born in Houston, Texas, but raised in West Des Moines, Iowa, where she spent most of her time caught between writing and gardening. Fascinated by the soil and atmospheric chemistry that affected each season’s roses or hydrangeas, she studied biology and chemistry by day and posted actively in gardening forums by night. She continued her study of nature and its stories at Brown University in Providence, Rhode Island, where she performed arctic paleoclimate research for three years while she earned an Sc.B. in Geology-Chemistry. She has published her work in numerous media, including *The College Hill Independent*, where she served as science editor for two years. Her other works have been published in the *Catalyst*, *The Brown Daily Herald*, Johns Hopkins University’s *Imagine Magazine*, the *Lyrical Iowa journal*, *Closed Captioned* magazine, and online at theindy.org. When she’s not attempting to germinate avocado seeds in her kitchen or researching geoengineering experiments, she can be contacted at fhusain@mit.edu or on Twitter @fatimagulhusain.

**Lydia-Rose Kesich** grew up in Portland, Maine, where she developed an early passion for life science. She studied developmental biology at Smith College, where a major part of her education included leading a research project on disruption of neural crest development by environmental hydrocarbons and the creation of a new technique for studying protein turnover in yeast.

After graduation Lydia-Rose joined the gubernatorial campaign of a clean energy entrepreneur in her home state of Maine, where her responsibilities included communications work, fundraising, and science policy. She hopes to use the skills she develops at MIT to pursue a career at the interstices of science and politics, where smart, persuasive writing has the power to create real change.

**Heather Mongilio** first declared she was going to be a journalist walking home from the bus stop in fifth grade. She grew up in Ellicott City, Maryland, where she discovered how fascinating the brain is and the adrenaline high from breaking news. After deciding not to choose between her interests, she earned her bachelor’s degree from American University in journalism and psychology. Heather worked at *The Eagle*, American University’s student-run newspaper and served as editor-in-chief during her senior year.

Prior to attending MIT, Heather could be found reporting on murder, domestic violence, drunken driving, and other crimes as a crime and courts reporter. She’s always been interested in psychology and medicine, but since working as a crime reporter, Heather has discovered her interest in the science of crime, including the psychology behind criminal acts and domestic violence as a public health concern. Heather is a self-described brain lover, and she enjoys chasing a good story, reading, baking, and watching the Patriots and the Red Sox.

**Frankie Schembri** was raised on snowy winters and long books in Ottawa, Canada. She began her undergraduate education at MIT in Mechanical Engineering but realized that she was most excited about explaining what she was learning to her friends and family. Frankie switched to MIT’s undergraduate science writing program, where she was able to combine her background in STEM with her love of communication, and graduated with a B.S. in June 2017.

Frankie has worked in an MIT mechanical engineering lab, as a communications assistant at the Harvard Kennedy School (reporting on the intersection of technology and democracy), and as an intern at a public relations firm writing content for software companies. Most recently, she was a communications fellow at MIT’s Office of Sustainability, where she reported on efforts to use the university as a living laboratory by testing researchers’ work on MIT campus operations.

Frankie is fascinated by the power of information technology and computing to shape modern life and hopes to report on these subjects in a way that is inclusive to all, arming the public with the information necessary to navigate an increasingly technology-driven world. She is electrified by the opportunity to continue strengthening her skills at MIT. Recreationally, Frankie enjoys meeting cats, eating doughnuts, searching for the freshest memes, and watching baseball.

**Kelsey Tsipis** did not always aspire to be a science writer. She was a child with ardent aspirations, prone to ever-changing interests and great immoderation in her passion. It wasn’t until she took her first science journalism class as an undergraduate at the University of North Carolina-Chapel Hill that she recognized that science writing perfectly suited her inquisitive disposition. As an undergrad, Kelsey focused primarily on a wide range of public health topics, including the implementation of the Affordable Care Act, mental health coverage, and research findings from UNC and Duke University—winning her the North Carolina Medical Society Scholarship for Medical Journalism. After graduating with a bachelor’s degree in journalism and mass communication with a specialty in editing and graphic design, Kelsey worked as a medical editor for an independent, nonprofit global research institute and served on the executive committee of the American Medical Writers Association-Carolinas Chapter. Kelsey is now beyond grateful to continue her passion for science writing at MIT with fellow students and professors whom she admires greatly.
2017 Julius Schwartz Lecture

BRIAN MICHAEL BENDIS
BESTSELLING MARVEL COMICS WRITER/ARTIST
5-TIME EISNER AWARD WINNER

THURSDAY, NOVEMBER 9 @ 5:30PM
32-123 cmsw.mit.edu/bendis
The central story I was thinking about when developing the idea of 'embodied montage' for my thesis in Comparative Media Studies was the myth of Orpheus. Eurydice dies and Orpheus goes back to hell to save her. Hades says, ‘Ok, you can take her, but the only thing is you are not allowed to look back until you leave. And if you look back, she will stay in hell forever.’ At the last moment, he looks back and she stays there. So, the act of looking has a big consequence. You can create these types of moments in virtual reality very easily because it is a computational medium, and it tracks all your bodily input. If someone looks back in a VR experience, it can cause something.”

To Deniz Tortum (S.M., CMS, ’16) this ancient myth speaks to something quintessential in VR projects, such as Oscar Raby’s Assent—looking signals moving, and moving equals involvement. To bear witness is no mere ocular event, but a physical and emotional act.

Tortum, an accomplished filmmaker and a VR practitioner, traces the lineage of virtual reality back to the early days of cinema: “VR is a computational medium, and it is embodied computation. It is also the first dream of cinema—the total cinema. It is not just images, and you’re not just in the theatre. You’re actually in an environment. Film theorist Andre Bazin wrote about this—that film tries to move toward being total cinema. It’s first black and white, it’s silent, and then sound is introduced, then color is introduced. Then there’s 3D, stereoscopic, and the Sensorama with smell or movement—trying to be this complete, immersive environment. VR is almost like the realization of the fantasy of cinema.”

Tortum recently screened a new short film at True/False film festival called “If Only There Were Peace” (co-directed by Tortum and Carmine Grimaldi). He also is a Creative Advisor for the CMS course Hacking VR. Here, he speaks about his research and several of his virtual reality and documentary film projects.

Sharon Lacey: Does your knowledge of film influence your virtual reality projects? And vice versa?

Deniz Torum: When thinking about virtual reality, I am trying to apply film history and film theory to virtual reality. Even though many people are against that, I think it is a fruitful thing. Revisiting each medium through other media is definitely helpful—even at keeping me motivated.

Most VR practitioners or academics say, “VR is not a filmic medium. It is not cinema. It is completely something else. It is its
own medium.” But when they say it is not cinema, they are generally thinking of one particular strain of cinema, which is probably mainstream Hollywood cinema. The thing to remember is that cinema is not one unified medium. There are lots of different cinema histories. I think that several of them, especially the ones that are obscured by mainstream cinema, the more experimental traditions, have much more to inform VR practice today.

That is what I am trying to figure out. I’m looking at different traditions of cinema and how they can inform VR. For many practitioners, when doing cinema, they are imagining a different future medium and not the cinema itself. For example, Hollis Frampton is trying to make these automated computer-edited films. He’s trying to do computational media with film. Even how Jean-Luc Godard structures his films has a lot in common with the interactive documentary world. Or, for example, Michael Snow’s film, Central Region (1971), is basically this camera on top of a mountain connected to a machine with no humans operating it, so the machine is operating the camera and the camera is shooting continuously attached to the machine. It is a seeing entity without a human operator, creating an automated filmic space. That definitely speaks to virtual reality and 3D virtual environments.

What was the topic of your thesis for CMS?

My thesis was called Embodied Montage.1 The new image is created through 3D capture. You can capture the world as a computer graphic and process these images of the world in game engines and create a game-like interactive experience of the captured real world.

In a virtual reality system, what happens is the images and sounds react to your body’s movement and position. VR can get input from your body—it tracks your head movement or hand gestures or position. With VR you can decouple action and perception and make new pairings. The environment can respond to the body in novel ways.

In film, you have one shot and a consequent shot, and from the juxtaposition, a third meaning can appear. In virtual reality the third meaning can appear from the novel relationships between the body and the environment, between action and perception.

You received a 2016 Schnitzer Student Art Award and exhibited a VR piece about a Turkish hospital in the Wiesner Gallery as part of that awards show. Could you talk about the genesis of that project?

I’m both shooting a documentary about the hospital and making a VR piece. I was really interested in how doctors relate to the hospital and to their profession. It’s not something that we see that much; when a piece is about a hospital, it’s generally about the patients or about the institution itself. Television series about doctors tend to be much more sterile, and they don’t really get into the mindset of being in a hospital and being a doctor. So, I wanted to shoot a film with that in mind. I was also working with the Sensory Ethnography Lab at Harvard, taking the class with Lucien Castaing-Taylor. I am continuing to work with the Film Studies Center at Harvard.

Essentially, it is an experimental ethnography—more about bodies, more about doctors. It’s observational, but in an embodied way. It is not just the camera on a tripod taking these long shots. It is much more about me as an observing subject, who is much more involved with the film. It is also not shy in showing stuff, so there are a lot of operation scenes.

And then with the VR piece, the user enters a hospital environment that isn’t populated with patients and doctors. The hospital setting evokes a lot of human drama despite the absence of people.

VR is more about spatial storytelling. Henry Jenkins, who is a founder of CMS, has a piece called “Game Design as Narrative Architecture.” He says the space you choose is the essential part of the story. That is the bone of the narrative; you build on that. Having a very charged

1 cmsw.mit.edu/embodied-montage
space to build on is really an essential thing for film as well.

For my process, I do a form of 3D capture, which is laser scanning. Laser scanners are mainly used by architecture firms or engineering firms. They send millions of lasers through a place and by calculating the time the laser takes to return, it measures the distance. So it generates a point cloud of the space and you can combine the points of capture to create unified spaces.

Similar to early photography—like with daguerreotypes, where one exposure would take like 15-20 minutes—laser scanning requires a long exposure, which means you don’t capture humans unless they’re posing for like 10 or 20 minutes. So what it does is it gives you these empty places without people.

I think the hardest thing about VR is to make pieces about people, because we don’t have a good way of capturing movement and the world in real time. Film is great for capturing reality in passing. VR is almost about the absence of people; you can do effective pieces about people with VR, but you should be aware of the limitations of the technology. Of course, that will probably change within 5-10 years.

In your VR documentary about the Istanbul Pogrom, September 1955, which you presented in the Keller Gallery at MIT, you and your co-creators devised an interesting workaround for depicting people, by making the figures amorphous and ghost-like. The piece draws on the photographic archive of Maryam Sahinyan (1911-1996) and Osep Minasoglu (1929 – 2013), Armenian photographers who lived in Istanbul at the time of the attack. Could you describe this work and talk about the decision to abstract the figures?

I did this VR installation about the Istanbul Pogrom with two friends, Cagri Hakan Zaman (Ph.D. Student, Design and Computation Group, Department of Architecture) and Nil Tuzcu (Research Fellow, Department of Urban Studies and Planning). It was funded by the Council for the Arts at MIT.

In 1955, over two days, many shops and houses of the non-Muslim minorities in Istanbul—Greeks, Armenians, etc.—were destroyed by mobs. The piece is a virtual reenactment of it. It places you in a photographer’s studio and you hear things outside the shop and experience it from the perspective of a local shop-owner.

If you put photorealistic people in the space, it breaks the essence of the whole project—that this is a lost, long gone space. These people are gone. They are not real. They were lost. So we decided to keep them as ghosts. And moment to moment, you get to see the real people from Maryam’s photographs. So what we thought was, OK, if you’re in that studio, we should be building up the story with the photographs of people who are gone. That was the idea to use some abstract representation.

If you could add something to your MIT experience, what would it be?

If there is any chance of getting a collection of Ed Pincus films here, that would be great.

One thing I noticed when I came is that it seems like there is no film archive. I thought Ed Pincus’s 35mm films would be here. Making a connection to the art tradition and history within MIT more visible would be valuable. Ricky Leacock, Ed Pincus, and Gloriana Davenport are great, and there are all these other great people like Michael Naimark, who worked here and is a big pioneer in VR, and projection mapping. With Gloriana Davenport, he worked on Aspen Moviemap; they did the first experiments in interactive media.

The first computer game was done here at MIT. It was the incredible moment in video game history. But they were computer scientists and their work wasn’t understood as part of what would become a new medium, so the information is not in one central archive. It’s a quintessential moment in the history of a medium. Also, VR started here. The first headset was created by Ivan Sutherland when he was a graduate student at MIT. How do you bring all those archives together, or those traditions together?

This piece originally appeared at arts.mit.edu/er-long-lens-deniz-tortum-lends-historical-perspective-new-medium
**REIMAGINING THE AVATAR DREAM: MODELING SOCIAL IDENTITY IN DIGITAL MEDIA**

Professor Fox Harrell and Chong-U Lim, Computer Science Ph.D., ’16

Computer science has long been intertwined with society’s technological dreams. The dream of automated homes relates to ubiquitous computing, just as the dream of sentient machines relates to artificial intelligence (AI). Another of society’s dreams could be called the “Avatar Dream,” a culturally shared vision of a future in which, through the computer, people can become whomever or whatever we want to be.

Our focus is not, however, on simply developing the technologies that can support theAvatar Dream. We instead argue for the need to reimagine the Avatar Dream where the potential social and cultural impacts of virtual identities are considered intrinsic to the engineer-reimagine the Avatar Dream.

Another of society’s dreams could be called the “Avatar Dream,” a culturally shared vision of a future in which, through the computer, people can become whomever or whatever we want to be.

We first define the Avatar Dream, describe its current state, and motivate our work by considering problems with current virtual identity systems. We then provide a theoretical framework for characterizing the relationships between virtual and real-world (physical) identities necessary for precise articulation of the sociocultural phenomena we study. The remainder of the article focuses on two key endeavors. The first is our computational approach to analyzing sociocultural identity phenomena in virtual identity systems; these techniques support engineers developing systems that avoid or combat negative phenomena (such as discrimination and prejudice). For example, we use AI to reveal how sexist and racist biases are embedded in a bestselling computer game, demonstrating an approach applicable to other systems. The second is our approach to simulating sociocultural identity phenomena; it includes developing technologies (such as an authoring platform called Chimeria and interactive narratives made using it that convey how individuals navigate social categories). These technologies support the aims of creating richer experiences for users, helping educate diverse learners, and conducting social-science research studies. We conclude by reflecting on this reimagined Avatar Dream.

### Defining the Avatar Dream

The Avatar Dream has two elements. One is technical, enabling users to control a virtual surrogate for themselves in a virtual world. These computational surrogate selves are often computer-generated images (CGI) but can range from text descriptions in games or social media to virtual representations that engage all the senses in futuristic virtual reality environments. The second is experiential, enabling users of these virtual surrogate selves to have experiences beyond those they encounter in the physical world, ranging from having new abilities to better understanding the experiences of others (such as of another gender or even another type of creature).

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**This article introduces the term “box effects” to refer to the experiences of people that emerge from the failure of classification systems.**

The current expression of the Avatar Dream in many contemporary societies includes using virtual identities to communicate, share data, and interact in computer-based (virtual) environments. We can thus view a manifestation of this dream as the avatar,’ or user-controlled representations of self in virtual environments. Neal Stephenson’s 1993 novel *Snow Crash* provides a science-fictional vision of avatars as technologies to reimagine one’s self. Stephenson wrote, “Your avatar can look any way you want it to, up to the limitations of your equipment. If you’re ugly, you can make your avatar beautiful. If you’ve just gotten out of bed, your avatar can still be wearing beautiful clothes and professionally applied makeup. You can look like a gorilla or a dragon or…”

Another manifestation of the dream is the social-media profile. Even in the heady days of the 1990s, it was understood that these profiles were distinct from our physical selves. In one of the most venerable social media sites—The Well—where users’ real names were available, self imagination was a central part of the appeal. The Well purportedly offered the freedom of projecting whatever personality you wished, along with the intriguing possibility of highlighting subtle variations of your character.”

Virtual identities in digital media, including virtual worlds, videogames, and social media, all hearken back to the Avatar Dream.

### Problems with current virtual identity systems

The need for socio-culturally informed virtual identity research is urgent; nearly everyone today has social media accounts for connecting with friends, e-commerce accounts for shopping, and videogame characters for playing. One problem in designing virtual identity systems is the need for intuitive, appropriate, and robust tools for avatar creation and customization. Just being able to edit avatar appearance is not enough to support peoples’ needs for self-expression when using virtual identities. It is important that avatars embody enough socio-cultural nuance to express facial expressions, body language, gait,

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*a Avatars, agents, and player characters each have slightly different definitions, although here the term “avatar” is used as the most general one; for us, the term “virtual identity” is even more general, including social-media profiles, e-commerce accounts, and other computational representations of users.*

*b “The Well” is short for “Whole Earth ‘Lectronic Link”*
Virtual identities can and should better serve the needs of diverse users.

DEFINING PHYSICAL, VIRTUAL, AND BLENDED IDENTITIES

Before describing our computational approaches, we clarify the terminology we use, in light of the ambiguities in terms like “real” and “virtual” identity.

Physical identities

For identities in the physical world, our focus includes but also goes beyond the notions often associated with identity like gender, race, and age. We are instead concerned with users’ identity experiences, which are informed by history, culture, and values in the physical world. While it is impossible to give a comprehensive definition of everything that affects people’s identities in the real world, we offer a simplified overview useful for the discussion in this article. Identity experiences are informed by history, culture, and values that exist in the physical world and manifest in the ways people behave. Identity experiences include cognitively grounded material (such as resources), and social (such as power relationships) aspects.

Virtual identities

Our definition of virtual identities focuses on their components as technical systems. A virtual identity in this model is characterized by its data structures and algorithms that are deployed to provide both representation and control to the user. In videogames, a common virtual identity type is the player character, or avatar, players take control of. Computers have long been a medium for humans to create virtual identity type is the player character, or avatar, players take control of. We thus enrich Gee’s model with an approach from cognitive science called “conceptual blending theory” in which blending is a proposed cognitive mechanism by which humans integrate concepts.

Blended identities

We have highlighted aspects of the physical and virtual world identities we are seeking to better understand. However, rather than considering each of them individually, this research is based on their interrelationships. We particularly seek to consider how values are socially and culturally constructed, enacted, and manipulated via blends between physical and virtual identities.

James Gee’s notion of the “projective identity” is a useful starting point. His use of the term refers to the reflection of players’ values in how they make sense of their avatars. However, while it provides a high-level descriptive characterization of identity, it is insufficient for our needs. It fails to capture important structural phenomena like mappings between a user’s actions and a virtual identity being controlled. We thus use Harrell’s notion of a “blended identity” in which aspects of a player’s physical identity (such as preferences, control, appearance, and understanding social categories) are selectively projected with aspects of the virtual identity onto a blended identity, integrating and elaborating aspects of each (see Figure 1). Blended identities can be studied in light of the interrelationship between both worlds. We later give examples of our approaches for analyzing blended identities computationally to reveal how physical-world values can be both embedded in virtual identity systems and enacted by virtual identity users.

It is also important to note that a single blended-identity user is not restricted to a single virtual world platform but often has multiple different virtual identities and behaves differently depending on the platform, what we term “cross-platform identities.” For each platform, there is a projection of a certain set of identity features from the user.

Box effects

This article introduces the term “box effects” to refer to the experiences of people that emerge from the failure of classification systems. Box effects include, but are not limited to, such related phenomena as stereotypes, social biases, stigmas, discrimination, prejudice, racism, and sexism. In the phrase “classification system,” as used here, “system” does not refer to a technical computer system but rather to the notion

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c Embodiment recognizes that “cognition depends on the kind of experience that comes from having a body.” “Situativeness” highlights the role of the context or social situation for cognitive processing.

d Conceptual blending theory has been criticized for using ad hoc, overly broad explanations. The theory has also been defended as being supported by a convergence of data from psychology, AI, sociology, literature, and philosophy and focus on exemplary phenomena resulting in a theory that comprehensively covers even challenging cases.
of classification put forward by Geoff Bowker and Susan Leigh Star, who said, “A classification is a spatial, temporal or spatiotemporal segmentation of the world,” and a classification system “is a set of boxes (metaphorical or literal) into which things can be put in order to then do some kind of work—bureaucratic or knowledge production.”

Our term “box effects” is useful because there is no common term for social phenomena with roots in classification systems. It is also useful to have an overarching term like box effects because specific terms (such as stereotyping and prejudice) have multiple definitions in different academic disciplines, as well as general, popular uses.

Better understanding existing systems and designing new systems that take box effects into account cannot be accomplished within a narrowly technical vision of the Avatar Dream. Our reimagined Avatar Dream recommends addressing box effects in several ways. First, developers must understand the ways box effects from the physical world persist in virtual environments in terms of system structure. Second, we must look at how box effects emerge from users’ behaviors in relation to categories from the physical world; for example, users might create stereotypical female characters in a game based on their own preconceptions about categories of physical-world gender. Finally, beyond needing techniques to understand and identify box effects in virtual environments, developers need tools to support addressing them (such as through more nuanced models of identity in games and interactive narratives) like those we provide with the Chimeria platform.

**ANALYZING VIRTUAL IDENTITY PHENOMENA**

Since 2010, Harrell has led a research initiative to better understand, design, and develop virtual identities called the “Advanced Identity Representation (AIR Project).” We use the term “advanced” with humility. Our computational systems cannot completely express the nuances of physical-world identities. Yet they provide advances over
current systems in their emphasis on physical-world identity categories social scientists have identified as important for modeling user experiences (such as of gender, race, and ethnicity) in addition to personality, values, and preferences. In this way, we can achieve advances in modeling phenomena (such as box effects), goals that increase the expressive range and utility of virtual identities. Our resultant systems are often necessarily reductive (from vast real-life experience to more limited data structures and algorithms) in order to be implementable. Yet this reduction is done knowingly with the benefit of expanding the expressive capacity of computational systems to address social-identity phenomena. As mentioned earlier, this work includes two types of computational modeling: analyzing sociocultural phenomena involving virtual identities using AI/machine learning techniques; and simulating sociocultural identity phenomena. We next describe our work in sociocultural phenomena involving virtual identities, including values built into systems (embedded) and patterns discovered (emergent) from users.

Limitations of current approaches
There are many survey-based studies of how behavioral patterns by users in virtual environments replicate identity experiences based in the physical world, but they have notable limitations. While useful for assessing subjective notions of identities expressed by users (such as preferences), self-reported survey data is often difficult to evaluate and subject to survey bias. Also, while useful for understanding certain user characteristics (such as articulated reasons for choosing among options), some aspects of users’ experiences (such as tacit knowledge) cannot be articulated, are intrusive, or are mentally or physically strenuous for participants or interviewers, and are often better suited to automated data collection and analysis.

New approaches to analyzing blended identities
Here, we present our approach to using AI for computationally modeling categorization, focusing on the novel use of these algorithmic techniques to address aspects of social identity often deemed challenging to quantify due to the subjectivity of their manifestations.

Clustering for computational categorization. In the field of AI, cluster analysis, or “clustering,” is the algorithmic process of grouping observations into categories (clusters) based on measurements of similarity between individual observations. An observation refers to a data point within the set of observations (dataset) and is represented through measurements of one or more of its properties, or “features.” Observations often correspond to players, each characterized by features that describe aspects of their physical identities (such as biological sex) or virtual identities (such as avatar appearance and behaviors). Cluster results are based on the definition of a cluster, or which features determine membership, and the similarity measure of observations, or how features are used to measure the similarity or differences between observations. Clustering is appropriate for our aims, as it enables quantitative analysis and can reveal new or unknown categories.

There are many different approaches to clustering users according to their behavior in systems using virtual identities (such as video-games). Our own experience includes investigating techniques like the k-means algorithm, principal component analysis, non-negative matrix factorization, and archetypal analysis for social analysis using virtual identities. Our focus here is on archetypal analysis, identifying a set of key observations in a dataset called “archetypes,” or certain external points in the dataset. Other observations can be represented as mixtures of these archetypes. This approach provides insight into definable characteristics of highly distinctive virtual representations or behaviors. It is also useful for revealing patterns of users’ behavior that either conform to or subvert conventions. In addition, as it provides a visible way to identify marginalized individuals, defined as observations notably distant from all archetypes, we find archetypal analysis to model more effectively than other clustering techniques.

Analyzing systems: revealing values embedded in technologies
We created a system called AIRavatar to perform fine-grain telemetric data collection of users’ virtual identify creation and customization behaviors. Named for an initiative called the Advanced Identity Representation (AIR) Project, AIRavatar also implements the clustering approaches described earlier and has been deployed in videogame and social media data systems. Here, we provide an example of how we reveal race and gender stereotypes through archetypal analysis. We analyzed the critically acclaimed and commercially successful videogame The Elder Scrolls IV: Oblivion that features an exemplary diverse roster of player character types; we cite it here as one example of a general phenomenon, not to single it out as especially inequitable to diverse users in contrast to other games. The upshot is we found and validated several forms of race and gender inequity. Players may choose to play as one of ten different races available. Though fictional, some of the races are based on physical-world national, racial, and ethnic groups through their textual descriptions and visual appearances; for example, Redguards represent people broadly of African descent (a single country or subgroup is not suggested); Nords represent Norwegians; Bretons represent French people; and so on. Player characters possess eight attributes representing abilities (such as strength and intelligence). Based on the player’s choice of race and gender, these attributes are initialized with a set of default values. In previous work, Harrell observed several forms of racial and gender inequity in the game (see Figure 2). For example, Bretons are twenty points more intelligent than both Redguards and Nords of either gender; females Orcs and Argonians are ten points more intelligent than males of the same race.

Examples of system-embedded biases (stereotypes of race and gender).
While Harrell previously highlighted inequity and biases in Oblivion, such insight is typically anecdotal and requires manual assessment. In order to quantitatively model these effects, we performed archetypal analysis on Oblivion’s distribution of statistical attributes for characters within the game based on gender and race, as in Figure 2. All races’ relationships to these archetypes can be presented using a ternary plot of the results (see Figure 3). This analysis automatically revealed the typical “archetypal” roles developers intend for players to conform
to based on how the statistical attributes are distributed within the game. More interesting, however, the analysis also revealed several box effects within the game’s design. Observing the three archetypes shows that male characters have better stats for playing in any of the most common roles than females. It also validates the observation that characters of African descent are optimized for strength- rather than intelligence-based roles. This quantitatively and visually represents biases that are often not as obvious, as in the following results:

*Traditional game roles.* Using archetypal analysis, we observed that the statistical distribution of numerical attributes corresponds with traditional role-playing game roles we call “physical-fighter,” “intelligence-mage,” and “stealth-thief”;

*Key individuals.* Our system calculated particular races to be key individuals (archetypes). For example, the Viking-like Nords and ostensibly African Redguards are stereotypically close to the physical-fighter archetype with no characteristics of the intelligence-mage archetype, though the Redguards exhibit some stealth-thief characteristics; and

*Physical-world stereotypes.* We observed a bias toward the male gender based on these archetypal races since male characters are generally closer to the archetypes. The game is thus inequitable toward certain races and female characters in ways that replicate physical-world stereotypes.

Revealing such box effects computationally enables us to quantitatively assess virtual identity systems, providing actionable insights into how designers’ decisions affect users and assistance in developing systems that enable users to take on virtual roles while avoiding undesirable biases. Our results do not suggest all characters should have equal attributes. Rather, they can inform creative designs that are just as effective and even more tied in to game narratives; for example, initial attributes could be based on characters’ backstories, rather than on essential characteristics of races or genders, by having players choose characters’ prior life events from categories corresponding to the archetypes (such as studious, or mage, physically strenuous, or fighter, or street-smart, or thief, upbringings).

**Analyzing users: Revealing user-enacted values**

We have revealed user values and preferences in the following ways:

**Modeling identity expression from player data.** Using our AIRvatar system, we created a custom-developed avatar customization system called Heroes of Elibca (see Figure 4) to give us full control over aspects of data collection for our experiment design. Players were presented with an introductory sequence to provide them with a familiar, computer-role-playing-game setting. Additionally, this helped us to contextualize the study as a scenario in which created avatars would be used as part of a videogame. Out of Harrell’s taxonomy of technical

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f. Art assets and resources from the publicly available Mack Looseleaf Avatar Creator (geocities.jp/ kusuono4/looseleaf) and Liberated Pixel Cup (fpc.opengameart.org).
Components of computational identity systems—static media assets, flat text profiles, modular graphical models, statistical/numerical representations, formal annotation, and procedural/behavioral rules—the results in the following subsections focus on statistical/numerical representations. Players customized their avatars by modifying the values of six statistical attributes—strength, endurance, dexterity, intelligence, charisma, and wisdom—on a seven-point scale; see the online appendix for descriptions based on commonly used conventions in role-playing videogames. Each attribute had default values of 4; there were 27 allocatable points for each avatar.

Examples of user-enacted biases (stereotypes from gender-category expectations). While previous research has shown that players exhibit gender bias toward avatars controlled by others in a virtual environment, here we present findings showing how biases can be modeled when constructing one's own avatar. We conducted a user study with 185 participants who were asked to customize their avatars using the avatar creator Heroes of Elibca. The demographic breakdown included 104 participants (or 56%) self-identified as male and 81 (or 44%) self-identified as female. We studied how they assigned statistical attributes to their avatars based on gender.

The results reveal the phenomenon of gender stereotyping in how some of these avatars were customized. In Figure 5, observe that female players gave male avatars significantly higher values for physical-related traits (such as “strength,” “endurance,” and “dexterity”) while giving them significantly lower values for intellect-related traits (such as “intelligence,” “wisdom,” and “charisma”). Female players here appear to be projecting aspects of an identity experience from the physical world (such as stereotypes of gender) onto the avatars. This demonstrates a kind of box effect, as it reflects a player’s cognitive formation of categories of gender roles, along with associated assumptions and expectations. Interestingly, we did not observe these effects in avatars created by male users, as in the online appendix. We observed this asymmetry in earlier results of a smaller sample size and also by other researchers. Such results are not meant to portray female players negatively; factors like the genre of the game may reward traditionally “male” behaviors like physical aggressiveness. These user-enacted social-identity phenomena reflect the situated nature of cognitively forming categories.

Simulating Social Identity Phenomena

The last section focused on techniques for identifying and analyzing...
The Avatar Dream

Box effects, but analysis alone is not enough for reimagining the Avatar Dream. Developers need tools that are better able to model socio-cultural-identity categories and the experiences that people have based on them. Here, we provide an overview of our platform developers can use to design and implement virtual identity systems that help users better understand box effects and/or enable more nuanced identity-category models that avoid them. Modeling box effects is necessary for the first part of the dream—being whomever you want using a virtual identity—because being someone is not just a matter of graphical appearance, but of modeling systematic experiences. The second part of the Avatar Dream—understanding the experience of others—requires modeling social experiences more robustly to avoid box effects. While one may not be able to directly experience what it means to live a physical-world life as a member of another social category using virtual identity, it is possible to use virtual identities to convey some of the patterns of experience people in other categories face and that exist structurally in societies. Enabling users to be a virtual female superhero or even just a more suave and dandy self requires techniques to help them imagine the subjective experience of those types of identity. Our platform demonstrates representational benefits of a gradient model of social identity; our examples demonstrate applications that aim to engender critical awareness about the nuances of social identity.

Computational models of social identity are found in a wide range of digital-media works. In computer role-playing games, racial categorization is typically used to style the visual appearance of a player’s avatar or trigger several different canned reactions when conversing with a non-player character. In social media, users typically join

Figure 5. Plot of how female players allocated statistical attributes of conventional role-playing games based on the gender of their avatar (female/male); note, the error bar for male avatars’ intelligence is zero because all were assigned a value of 4 on a 7-point scale.
Being someone is not just a matter of graphical appearance, but of modeling systematic experiences. The second part of the Avatar Dream—understanding the experience of others—requires modeling social experiences more robustly to avoid box effects.

Simulating and avoiding box effects

Our “Chimeria platform” (hereafter Chimeria) is a system that supports simulating of physical world identity phenomena in virtual identity systems ranging from social-media accounts to videogames. Such simulation augments virtual identity models with gradience and dynamics, increasing their sociocultural nuance. Such additional nuance supports demonstrating how box effects are detrimental. And demonstrations are performed by creating expressive systems (such as videogames) that reveal how forms of discrimination function or avoiding box effects in utilitarian systems (such as social-media platforms). It does so in two primary ways: modeling the underlying structure of many social categorization phenomena with a computational engine; and enabling users to build their own creative applications about social categorization using the engine as a backbone. The underlying engine allows for the movement of individuals within, between, and across social categories.

It also allows for category members to have varying degrees of centrality to each group, assimilate or naturalize in relation to a hegemonic group, and be members of multiple groups. These aspects of the system are grounded in theories from sociolinguistics, cognitive science, and the sociology of classification. The system is thus capable of modeling complex social behaviors (such as “impression management,” addressed later). We next describe the architecture of Chimeria and two applications built with it.

Chimeria authoring platform

Chimeria supports simulating experiences based on social-group membership using a data-driven approach and consists of three main components (see Figure 6). Simulations may take different forms (such as a 2D visual novel game, a fictitious social network chat narrative, or 3D virtual environment).

Chimeria engine. This is our implementation of a mathematical model of users’ degrees of membership across multiple categories. The Chimeria engine is designed to calculate, modify, and simulate changes to these memberships, acting as the system’s logical processing component. It models users’ category memberships as gradient values relative to the more central members, enabling more representational nuance than binary status of member/nonmember commonly used in applications; for example, on the social network Facebook, being someone’s friend can be viewed as a basic Boolean flag; in the physical world, however, there are varying types and levels of friendship people have with others. Chimeria is intended to enable both a greater range of expression of such nuances and representations that better serve users.

Chimeria application interface. This is a visual interface for user interaction and for experiencing the narratives of category membership changes, or game or story interfaces. The separation between the back-end (Chimeria engine) and the front-end (Chimeria application interface) provides the flexibility to go through the same narrative trajectory in relation to membership shifts with varying visuals. Chimeria narratives are authored by developers using an XML file format with a narrative structure, as described in Harrell et al.

Chimeria domain epistemologies. An “epistemology” is an ontology that describes cultural knowledge and beliefs. In Chimeria, they are the knowledge representations of the categories being modeled. Assets used to present these categories can be author-contributed (such as graphics and text) or data-driven (such as retrieved YouTube videos).

Chimeria applications

To better illustrate the capabilities of the components within Chimeria, we describe two very different simulations of social experience created using Chimeria. These are Chimeria:MusicNet, a social-networking simulation application that models social categories in the domain of musical preferences and Chimeria:Gatekeeper, a computer role-playing-game scenario that models a conversational narrative between the player and a non-player character.

Chimeria:MusicNet. This application, the name of which is an abbreviation of Chimeria:Musical-Identity-Social-Network, uses the Chimeria engine to model social experiences based on categories of music preference. Psychologists David Hargreaves, Dorothy Miell, and

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i Lakoff cited a convergence of work in multiple fields, suggesting a need for more nuanced categorization models. For example, from computer science, he cited Zadeh’s fuzzy logic, which is useful for formalizing our models of gradient membership but unnecessary for the current implementation.

j We also made a demo integrating Chimeria with a 3D game interface, using the Unity game engine; see unity3d.com.

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k For example, using features related to tie strength, the Chimeria engine could be used to dynamically compute friend centrality.

l Unlike its use in philosophy regarding the nature of existence, we use the term “ontology” here in its computer-science sense, referring to the AI notion of computational-knowledge representations. Ontologies provide ways to specify conceptualizations of aspects of some domain (such as using objects, types of objects, attributes, relations, and events) and can be represented informally, semi- or very formally (such as first-order logic).
Raymond MacDonald note that the music people listen to becomes a venue for the expression and formulation of their sense of self-identity and identity portrayed toward others, or “a musical identity.” The system models category membership using musical preferences that are automatically constructed from a user’s set of music “likes,” or binary indications of positive valuation, on a social-network profile. These “likes” are musical artists from which the Chimeria engine extrapolates (using commercially available musical-classification data) moods (such as cheerful and gloomy), themes (such as adventure and rebellion), and genres (such as film score). This extrapolation leads to a set of musical-identity categories, that is, musical-affinity groups that provide the context for non-binary group membership and passing, or the “ability of a person to be regarded as a member of social groups other than his or her own…generally with the purpose of gaining social acceptance.” Each user’s set of moods, themes, and genres then affect the generated narrative in fundamental ways. The focus for Chimeria:MusicNet is not on categorizing music but on the modeling of musical preferences using a knowledgebase aggregated from external data. These models are used to dynamically construct a narrative conveyed through a social network interface, or “conversational narratives,” structured by a model of conversation from sociolinguistics.

Figure 7 is a screenshot of Chimeria:MusicNet. A dynamic collage of photos, or photowall, is procedurally generated to represent the user’s musical-taste preferences; a feed of recent updates, posts, and invitations appears in an adjacent vertical timeline, as in Figure 7. Using musical preferences from the user’s Facebook music likes or by manual entry, a hybrid real/fictitious conversational narrative experience progresses over time in a manner described as follows. Dynamically generated posts by the user’s non-player character friends comment on the user’s membership in multiple musical-affinity groups, as in “You’re a raucous rock fan now?” or “Want to hear some airy jazz music?” The user may “like,” “dislike,” or simply ignore these posts, resulting in group-membership changes. Some friends question newly discovered interests while others pass judgment on prior affiliations. The resulting narrative may describe passing or assimilating as a member of a new group of music listeners, reinforcing a prior group affiliation, or even being marginalized in every group.

Chimeria:Gatekeeper. This application models a common role-playing-game scenario—a player trying to gain access to the inside of a castle. The scenario illustrates a phenomenon noted by Harrell, who wrote, “There exists a perceived appropriateness of particular ways to present one’s self in different situations, as well as social avenues that may be closed off or accessed only with more difficulty due to externally defined social prejudices and biases. This perceived negative difference between diverse individuals and socially defined, desirable and privileged norms is called stigma.” The Chimeria:Gatekeeper scenario is based on sociologist Erving Goffman’s work on stigma. The unseen player character is initialized in a “discredited” (stigmatized) category, and the non-player character is initialized in an “accepted” category. The discredited category is prototypically defined as the Sylvanns race—tall, well-spoken, and wearers of fine clothing. The accepted category is prototypically defined as the Brushwoods race—short, plain-spoken, and wearers of rough-spun clothing. To gain access into the castle, the player must exhibit behaviors that convince the guard that she or he should be admitted; most players try to demonstrate that the player character fits in the accepted category, a social-identity phenomena known as “passing.” Figure 8 depicts choosing a dialog option to fit into the accepted category. Actions (such as slouching to adopt the posture of a prototypical Brushwood or displaying fine Sylvann clothing) shift the non-player character’s model of the player character’s category memberships, rendering the outcome closer to gaining access or being rejected. Chimeria handles alternatives to the common strategy of intentionally passing, simulating experiences of a variety of box effects based on Goffman’s notion of impression management. Other simulated experiences include voluntary disclosure of stigma and slipping, or trying to pass as an accepted member but failing. They capture trade-offs between gaining utilitarian access versus loss of self-identity.

User testing has revealed Chimeria overcomes limitations common in virtual identity systems while enabling critical examination of how identities are negotiated in the physical world. While this fantasy scenario may seem far removed from physical-world experiences of stigma like sexism and racism on the job, such tensions exist and are common; for example, in the U.S, speakers of southern dialects of English have described needing to change their speech patterns to suitably impress an employer, and female entrepreneurs and politicians have described pressure to de-emphasize stereotypically feminine characteristics to be taken more seriously by those in positions of power. Such people have described having to get past “gatekeepers” as an apt metaphor for their experience.

FUTURE WORK

The outcomes of the work we have described here have led to several new projects at the intersection of computing, sociocultural identity, and imaginative cognition. The projects further model dynamic relationships between virtual identities and sociocultural identity phenomena in the physical world. These projects aim to, respectively, use avatars to support public high school students from groups currently underrepresented in STEM fields in seeing themselves as powerful learners and doers of computer science and to excite them about the field; better understand global culturally specific everyday uses of virtual identities in social media and videogames; and create a virtual reality system that helps engender empathy in the midst of global conflict (a collaborative project directed by war photojournalist Karim Ben Khelifa).

Technologies we use to imagine ourselves can be powerful media for social empowerment through critical thought and social awareness. For us, this is a more urgent dream. Like dreams of ubiquitous computing and AI, the most important aspect of the Avatar...
The Avatar Dream

Dream is not whether it is achievable but that it pushes us to consider the limits and ethics of virtual identity technology development and propels us toward innovations that benefit society.

CONCLUSION

This article is a result of more than seven years of research toward our reimagined Avatar Dream wherein addressing social and cultural concerns is intrinsic to its realization. The Avatar Dream is not a panacea for social-identity problems; virtual identities are mere technical components of broader phenomena of human identities and the many concepts, artifacts, and interactions that produce them. We must move beyond questions of whether the Avatar Dream is achievable and also consider whether it would be good if achieved.

Still, we have thoughts regarding whether the Avatar Dream is indeed achievable. Answering first necessitates clarifying what it means to become someone or something else using a computer. Humans have great power of self-imagination. Yet the physical world
we live in is rife with individual, social, and cultural histories that affect people’s capacities to determine their own identities. Such histories constrain our ability to directly understand the experience of others. As human-created artifacts, virtual identities reflect historical, social, and cultural constraints from the physical world. Achieving the Avatar Dream requires a better understanding of the relationships between the constraints imposed by our social-identity experience in the physical world and our potential for self-imagination in virtual worlds. Ignoring these constraints on our social identities results in both system-embedded and user-enacted box effects, rendering the Avatar Dream unachievable. While the existence of negative box effects has been forcefully argued in anecdotal terms, we have demonstrated a method for empirically demonstrating their existence through computational modeling. If virtual identities are used to reinforce cognitive or structural constraints to the detriment of individuals, achieving the Avatar Dream would be harmful, even if possible.

A child growing up in poverty imagining herself as a future successful engineer—despite having never lived as one—is a powerful act of self-imagining. If she is discriminated against because she is deemed poor (or any other identity-related reason) and denied access to the resources to become an engineer, then structural constraints have limited her ability to take on a social identity she aspires to. If she believes that becoming an engineer is not achievable because of her socioeconomic status, then cognitive constraints based on her experience of social identity have limited her capacity to self-imagining.

Our work using AI to analyze blended identities aims to reveal both structural constraints embedded in systems and cognitive constraints emerging from users. We seek to support individuals’ capacities to self-imagine in empowering ways while negotiating oppressive social constraints they face. At times, this may entail supporting users to imagine themselves as whomever they want to be; at other times, it entails supporting users in realizing and negotiating constraints rooted in the physical world. This is our reimagined Avatar Dream—a socially and culturally informed vision that would be good if achieved.

ACKNOWLEDGMENTS

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BRINGING “EINSTEIN’S DREAMS” TO LIFE

MIT Music and Theater Arts
Video available at cmum.it/yt-einsteins-dreams

“Einstein’s Dreams,” a novel written by Alan Lightman, physicist and professor of the practice of the humanities in MIT Comparative Media Studies/Writing, is a collection of dreams, or “thought experiments,” exploring the boundaries of space and time. What if time wraps back on itself? What if time slows down as we speed up? Such questions trace Einstein’s journey toward the discovery of special relativity.

This spring, Neerja Aggarwal, ’17, a recent graduate in electrical engineering and theater arts, directed MIT Theater Arts’ production of “Einstein’s Dreams,” inspired by a theatrical adaptation of the book by Wes Savick, as her senior theater thesis project. The performance, which ran in MIT’s Kresge Little Theater, was created by a team of over 30 actors, designers, and technicians, and featured original music and choreography.

From the beginning, Aggarwal’s thesis committee encouraged her to experiment—and to be bold. During her preparations, she shed her preconceptions about “what a final theater piece should look like,” she says. Aggarwal embraced new ways to express the concepts and questions that absorbed her and discovered new ways to work with actors, composers, and designers. By daring to let go of what she knew, and embracing the unknown, Aggarwal and her company created a powerful theatrical experience.

“‘Einstein’s Dreams’ is about the cost of creativity, the struggles, the frustrations, the obsessions of the creative process,” she explains. “This is something I feel that we all at MIT can relate to.”

Aggarwal is currently a master’s student in electrical engineering working on Raman and fluorescence spectroscopy of in vitro skin tissue models in the Research Laboratory of Electronics’ Physical Optics and Electronics Group. She is especially interested in exploring concepts in science through the lens of performance and feels that being in theater has helped her to excel as an engineer—and vice versa. In her mind, there are only two places where magic can happen: in physics and on stage.
CLOSING THE GENDER GAP IN MECHANICAL ENGINEERING

Study co-authored by CMS/W lecturer Andrea Wirth examines MIT Department of Mechanical Engineering’s success in recruiting female majors.

Mary Beth O’Leary, MIT Department of Mechanical Engineering

In 2015, comments from a Nobel Prize-winning biochemist claiming female scientists distract their male colleagues in the lab immediately led to backlash across social media. Women shared selfies going about their routine conducting research to demonstrate just how “distracting” they are. Months later, individuals around the world responded to offhand comments about a female engineer with the hashtag #ILookLikeAnEngineer. Earlier this year, General Electric envisioned a reality in which female scientists, such as the late MIT Professor Emerita Millie Dresselhaus, are revered just as much as celebrities and athletes.

These events reflect a wider movement to combat sexism and encourage women to pursue careers in science, technology, engineering, and math (STEM). The gender gap in these fields is pronounced, to be sure. In mechanical engineering, for example, only 13.2 percent of bachelor’s degrees in 2015 were earned by women, according to the American Society for Engineering Education (ASEE). However, this number is in stark contrast to the undergraduate population in MIT’s Department of Mechanical Engineering (MechE), which as of fall 2016, comprised 49.5 percent women.

So how did MechE achieve a gender split that far surpasses the national average? It’s a question that a team of researchers, including Kath Xu, ’16, senior lecturer in mechanical engineering Dawn Wendell, ’04 S.M. ’06, Ph.D. ’11, and lecturer in Comparative Media Studies and writing Andrea Walsh sought to answer. They presented their results in June at the 2017 American Society for Engineering Education Annual Conference.1

GENDER PARITY AS A RECRUITMENT TOOL

The team found gender parity starts before students set foot on campus. MIT’s Office of Admissions has employed a variety of tactics to recruit female applicants. “We have to fight against conventional wisdom,” says Dean of Admissions Stuart Schmill in an interview with the researchers. Schmill and the rest of MIT Admissions have to combat the popular assumption that the Institute is predominately male. In actuality, MIT’s undergraduate population is 46.1 percent female.

Admissions utilizes various channels—including blogs and Campus Preview Weekend—to dispel the myth that women are not represented on campus. “What made MIT stand out to me as an applicant were the student blogs,” recalls Xu, who graduated with a degree in mechanical engineering. “They do a good job of showcasing the number of women and minorities at the school.”

Programs like the Women’s Technology Program (WTP), run through MechE and MIT’s Department of Electrical Engineering and Computer Science, also encourage young women to pursue STEM studies. The WTP invites female high school students to live on campus over the summer and gain hands-on engineering experience in labs and classes.

Highlighting the ratio of women in the student population is a “chicken-and-egg cycle,” as Schmill puts it in the study. MIT is able to attract female applicants by showcasing the number of women on campus, which then begets even more women on campus. Once these women are at MIT, they often gravitate toward female faculty for guidance and mentorship.

AN EXISTENCE PROOF

Seeing the effect female faculty members have on the women they teach helped former head of MechE Rohan Abeyaratne, who was also interviewed for the study, realize just how important it is to have women in leadership positions. One such faculty member is Anette (Peko) Hosoi, the Neil and Jane Pappalardo Professor of Mechanical Engineering and the first woman to be named associate department head in MechE.

“One thing I remembered greatly soon after Peko was hired was the number of female students who were going to her office hours was striking,” recalls Abeyaratne. The comfort level female students have with female faculty demonstrates the necessity for having more women in teaching roles.

In the study, the researchers found what female undergraduates are most interested in is assurance that they will have job prospects in the future. “When we talk to undergrads, they are not looking necessarily for role models,” explains Hosoi in the study. “They are looking for an existence proof. They want to know, ‘If I go down this path, is there going to be a job for me?’”

As students, both Xu and Wendell were able to find such existence proof on day one of majoring in mechanical engineering. Xu’s very first class was taught by Principal Research Scientist Simona Socrate, S.M. ’90, Ph.D. ’95. Meanwhile, Wendell’s first class was taught by Professor Emerita Mary Boyce, S.M. ’84, Ph.D. ’87, who became MechE’s first female department head in 2008.

“At the end of the semester, I emailed Professor Boyce to ask her about being a mechanical engineer,” recalls Wendell, who now is a senior lecturer in the department. “She met with me for over an hour, telling me about her career and her passion for engineering.”

1 aseec.org/public/conferences/78/papers/19081/view
COLD CALLING FEMALE FACULTY

In their conversations with former and current faculty, the researchers found that twenty years ago, MechE wasn’t as welcoming an environment. With just one female faculty member in the late 1990s, it was clear something had to change. The 2002 Report of the School of Engineering was a turning point and prompted Thomas Magnanti, dean of engineering, to take action by requiring departments to enforce affirmative action. As part of MechE’s efforts, qualified women received phone calls encouraging them to apply to faculty positions.

One such woman was Hosoi. “When I arrived at MIT, there were a lot of women who had been hired at the same time,” she recalls in her interview with researchers. “At a junior women’s faculty lunch, somebody asked, ‘How did you end up at MIT?’ All of the answers were the same. ‘Somebody called and asked me to apply.’”

In addition to cold calling, the study found that altering faculty job descriptions to be more broad helped cast a wider net in department leadership’s efforts to ensure that more women had the opportunity to join the faculty.

INCREASING AWARENESS TO REDUCE THE GAP

The first step toward closing the gender gap in STEM, according to Xu, Wendell, and Walsh’s findings, is acknowledging the gap exists. Increased awareness at MIT led to a concerted effort by departmental and Institute leadership to attract more female students and faculty members.

“Achieving gender equity takes proactive effort and conscious strategies to achieve that goal,” explains Walsh.

In addition to MechE’s commitment to achieving gender parity over the past two decades, there has been a great deal of support at an Institute level. MIT introduced more women’s programming across departments, invited speakers to discuss issues like imposter syndrome, and ensured women on campus had the support they need. Additionally, MIT’s Program in Women’s and Gender Studies addresses issues of gender equity in STEM through courses and programming.

While these efforts have helped attract more women in the faculty and student populations, there is still more work to be done beyond the halls of MIT. “We aren’t just looking to make MIT a more welcoming place for women engineers, we also want to change the world,” adds Wendell. “Subtle bias is everywhere. I’m often mistaken for an administrative assistant, and when I give talks elsewhere, people will walk right past me and ask where the invited speaker is.”

The researchers conclude that the cultural shift needed to achieve gender parity in MechE was sparked by many small changes and the support of key allies on campus. “It’s their hope that MIT and MechE’s example could help other schools. “We wanted to provide a blueprint that is broadly applicable to other universities that want to increase the female population in their STEM departments,” says Xu.

MIT has one of the world’s great collections of public art. As the images on the next pages testify, though, one virtue is how much visual power its pieces retain outside their campus context. That’s luck, perhaps. Alexander Calder, in 1965, didn’t design his monumental stabile “La Grande Voile” in anticipation of Photoshop’s “find edges” tool creating the digital sketch below that’s missing the sculpture’s black-painted steel or environment of concrete, greenery, and sky. Each of the images that follow—as well as this magazine’s cover—have something like that: a kind of unintended artistic diairesis that uses technology to study the collection’s constituent parts.

Source pieces:
- Previous page: Yingni Wang, “Fatty,” from The Borderline Mural project @ tunnel from buildings 66 to E17
- Alexander Calder, “La Grande Voile (The Big Sail)” @ McDermott Court
- Ralph Helmick, “Schwerpunkt” @ Building 46, McGovern Institute for Brain Research
- Meghana Bhat, S.B., ’17, Untitled, from The Borderline Mural project
- Jasmine Quigley, “Dragons,” from The Borderline Mural project
- Jaume Plensa, “Alchemist” @ Building W20

Photographs by Elise Chen
Edited images by Andrew Whitacre

Find all of MIT’s public art: listart.mit.edu/public-art-map.
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CRAFTING A COMMUNITY OF WRITERS
Katherine J. Igoe, MIT Alumni Association

There’s a small but powerful graduate program that’s quintessentially MIT in rabid pursuit of scientific knowledge and discovery, but set apart by its focus on telling the story of that discovery. Alumni publish in *Buzzfeed* and *Esquire*, in *Science Magazine* and *Popular Science*, on subjects ranging from dinosaurs to global warming; they include a Pulitzer Prize winner, a Carson Book Prize winner, and a Fulbright-National Geographic Digital Storyteller. The MIT Graduate Program in Science Writing (GPSW), housed in Comparative Media Studies/Writing, prepares students for a lifelong career in science writing.

The program is small—this year’s class has eight students—and it’s compact, clocking in at a year long. But it packs a lot into that year. Each student completes an internship, thesis, and video documentary, all while coming up with potential story ideas, writing articles, and taking classes with faculty who are *New York Times* bestselling authors and renowned journalists.

Students will be published in GPSW’s own publication, *Scope*, and some faculty members also accept article pitches for their publications.

Tim De Chant, who teaches GPSW’s news writing section and is founding editor of *Nova Next*, emphasizes that the scope gives students basic tools for writing success. “Every news story the students write is not just an assignment—it’s also a pitch. That experience is critical.” When they graduate, students will pitch editors story ideas regularly, and it’s helpful to know what will set their ideas apart.

Some students come with a specialty in hand, like astronomy or robotics, in which case they’re encouraged to use their electives to branch out and enlarge their exposure. Other students seek to transition into science writing, in which case their study will fill holes in their background. In all cases, the writing is grounded in research: each student spends twelve hours in one of MIT’s labs and publishes a profile about it in *Technology Review*.

Former program member Josh Sokol (S.M., ’15) is branching out from writing about astronomy into more diverse, long-form storytelling. He points out that GPSW also facilitates advanced science writing like non-linear multimedia methods of storytelling. “The program is full of aspirational work—which you often can’t do in your first few years as a science writer,” he says. “It’s like a tasting plate for what being a science writer will be like.”

Many graduates go on to a freelance writing career, which can be a lonely, challenging experience with no guaranteed income, rejection from editors, and stiff competition. The program staff champion former students and connect them to resources and potential work.

GPSW keeps alumni connected through their mailing list, formal and informal social events, a mentoring program with current students, and invitations to attend the GPSW graduations. GPSW also promotes published work by alumni on Facebook and Twitter. The small size of the program helps make room to spotlight everyone: since the first class graduated in 2003, there are just over 100 alumni.

Academic Administrator Shannon Larkin recently started a private Slack channel so alumni could communicate in real time. “Within minutes, they had set up their own meeting rooms and started connecting with each other and complaining about deadlines,” she says. Sokol loves that community connection. “I’m often interviewing sources and talking to editors. Sometimes I’m desperate to have peer contact and share information.”

Christina Couch (S.M., ’15), a freelancer who used the program to transition to technology and robotics writing, says the community has helped her with mentoring, getting work, and even helping find people to interview.

The GPSW faculty and staff are the linchpin for connectivity. “Shannon is happy to put you in touch with other alumni and help you problem-solve when you have a writing challenge. She knows everyone, and she cares very deeply,” says Couch.

De Chant teaches students to think from the reader’s perspective so, no matter their focus, they can learn how to communicate the excitement of science and new research. “You have to be able to tell your story in one line, there has to be an easy way to describe it, the imagery has to be good, and you have to think in terms of active, forward statements.”

“We’re teaching students how to be reporters, for news stories, today.”

First published at slice.mit.edu/2017/09/26/crafting-a-community-of-writers
Edited this year by lecturers Lucy Marx and Cynthia Taft, CMS/W publishes Angles, an annual collection of the best writing from MIT introductory writing subjects. In various forms over the decades, MIT has required undergraduates to take communications-intensive subjects, and one of those is Reading and Writing Autobiography, from which this piece by Kathryn Mohr comes. Her assignment was “to stretch creatively—to try something new in style or genre.”

Support for Angles comes in part from the Umaer Basha Fund in Writing and Humanistic Studies, and we encourage you to learn more about the fund and contribute at cmswm.it/basha-fund.

I was always one of those kids who could take a road trip and just stare out the window and never be bored. I remember we took a road trip to Texas when I was about six, and as we drove through Pacheco Pass, where the wind farms covered the golden hills, I would imagine what it would be like to ride on one of the huge arms, and when we passed through Arizona, I would imagine living in the plateau-filled desert and making pots out of the clay I could find, and when we passed through half-abandoned, dust-blown towns in Texas, with their fading signs and rusted cars, I would imagine what it must have been like when the people were still there, when the stores had just opened.

As long as I can remember, I have been drawn to forgotten places—those odd concrete structures you see by freeways or in the middle of a roadside farm, those abandoned warehouses and stores, those old foundations of cabins still sitting in the woods. I feel a painful ache for places like that. With pretty much anything that’s been forgotten or abandoned, my mind immediately thinks back to its origin, when it was first built, who might have used it and appreciated the space, or called it home. I feel a need to honor and understand these abandoned places, to go into them and remember their origins. I guess I want, in some way, to warm the lonely spirit of a place through comprehension.

At home, on the peninsula south of San Francisco, I devoted a lot of my free time to finding all of the oddities, secret places and forgotten parts of the land and cities. I remember once walking down Marsh Road after high school, and stopping by an old railroad track and seeing an odd scar through the land. The railroad cut through the suburban area like a knife, but there was also an oddly straight line of open plots and parking lots aimed at a totally different angle through the houses. I stood on the corner and looked back and forth at this, wondering why on earth this narrow strip of land was empty. I went home and spent hours studying satellite images of the area. This...
THE FIGURE ON THE HILLSIDE

Odd strip of undeveloped land cut straight through the entire eastern side of the peninsula, continued on for hundreds of miles across the bay, through the central valley, and then disappeared into the Sierra Nevada Mountains. I began to get a clue as to what it was when I saw what it became as it passed over the bay: two thick black lines. I figured it must have been an underground pipeline, one that couldn’t be built upon because of its importance or age. I thought back to driving down a steep, winding hill right next to Crystal Springs, the reservoir that served nearly the entire peninsula. There had been a blue painted pipeline that dove in and out of the hillside right next to the road; I remembered my mom telling me that that was Hetch Hetchy, California’s most important and longest water pipeline.

Several years before, my dad had taken me to ride my bike at the Pulgas Water Temple, a large, concrete circular structure held up by ornate pillars with water rushing beneath it. That, it turned out, was where the water in the Hetch Hetchy pipeline finished its journey from the snow melt in the High Sierras, down the golden foothills, across the endless central valley, through the East Bay hills, over the bay and right though my neighborhood. Above those aging pipes, pumping water for miles and miles, is only this odd scar through the land that no one ever questioned and no sign explained. I had never expected to connect the water flowing through our kitchen sink and out of the showerhead to this scar in the land.

I loved discovering connections like this and learning the hidden past to be found through the cryptic clues that the land held.

I must have been age thirteen, sitting in the back seat of our black Volvo station wagon as we drove down the 280 Freeway near Portola Valley, California, when I first noticed the grate. We used to drive down that freeway nearly every day, but the metal gutter settled in the long snaking island in the middle of the eight-lane highway had never caught my eye before. I found myself filling with the excitement of a high schooler in need of some sort of release and adventure.

Later that day, I opened up satellite images and observed the area. On one side of the freeway, there was a county road that came to an abrupt end where I could see the blurry brown smudge of an old bridge over a small brook and, farther down a trail, what looked like a concrete mouth opening just below the asphalt freeway. On the other side of the freeway was a similar structure, surrounded by trees and a mess of wooden fences separating two properties. When I saw that hint of a tunnel under the 280, I couldn’t help but wonder what it had been used for.

I used to go on long bike rides almost every weekend, and I would stop at Roberts Market, a very old general store right at the base of Windy Hill, in the Santa Cruz mountains. Inside, among the crammed aisles of canned food and cold drinks, were old photos of the Portola Valley area. Dirt roads crossed each other next to little wooden houses and stores. Horses drew carriages down the dusty streets, and the beautiful hills rose behind, covered with grazing cattle. Now the roads were kept smoothly paved, and the land was dotted with high-end houses, little community centers and well-kept
hiking areas. This was west of the 280. But east of the 280, where I lived, was a relentlessly built-up suburban sprawl that grew thicker and thicker with people and buildings as you got closer to the bay. Built in 1955, the 280 Freeway had created a boundary between the growing suburbs, industries and companies expanding on the east side and the Santa Cruz mountains, big, spread-out houses on expansive plots and the grazing cattle and horse ranches that still existed on the west side.

One overcast day, I decided I would walk over to the tunnel and investigate. It was late winter, the California kind of winter, with sixty-degree weather, dead trees and lush green hills. I emerged from my neighborhood onto the main road, Sand Hill, wearing cheap flip-flops covered in teeth marks from my dog, running shorts, a baggy shirt and a sweatshirt. I had just finished track practice, and now had the rest of the day to put off my homework by walking. Sand Hill Road approached the 280 perpendicularly and went over it on a bridge. To my right and left, oleanders lit up the green and grey surroundings with bright pink, white and magenta. The wind was warm and inviting, and the familiar smell of the green hills mixed with the exhaust from the freeway. The eucalyptus trees bent and swayed in the wind and the sky spat down occasional drops of rain. The sidewalk beneath me began as a well-kept footpath dotted with a line down the middle, separating runners and walkers passing on each side, before thinning to a narrow concrete path. Here, the curb was much higher than normal, as though the sidewalk had been thrown on at the last moment beside the busy road.

When I got to the on-ramp of the freeway and had to cross, the sidewalk turned into a mess of concrete chunks with dry weeds poking out from between the cracks, and shards of glass pressed into the fine sand that had built up as water carried it onto the street. The bridge over the freeway was unprotected; the cracked sidewalk lifted twenty feet above the rushing cars, with a railing only about as high as the middle of my thigh. The sky was growing heavier and heavier with moisture, although I felt pretty sure the imminent downpour would never come.

This was the height of the rainy season amid a drought that had been going on for years; it always seemed like the sky was holding itself back, growing darker and darker without any release. What little water dusted the ground would instantly dry up, as the deprived soil sucked the water into the cracks. I used to wonder how every year the grass still managed to turn green, even if for only a few months.

I crossed the freeway, and the sidewalk came to an abrupt end at the place where Sand Hill sloped upwards and a tiny county road turned off back towards the freeway. Sand Hill was smooth, dark and well-paved, as the high-end cars of those who lived in Portola Valley shot by, but the county road that branched off was practically dirt, the asphalt so weathered it resembled rough, cracked skin. This odd little road ran between the freeway and some open grassy hills partially covered with oaks. The road looked abandoned, but I could see the mark of people—beer bottles thrown on the side of the road, and a hardhat left next to the PG&E antenna halfway down the road’s length. Across from the antenna was a large wooden cross that looked dark against the grey sky. A white tank top with the Corona beer brand on the front was hanging on one side, flapping feebly in the wind.

I walked down the hill the road followed and saw where the road came to an end at a bramble of bushes and wide oaks. On the right side of the road, a sign that read “No dumping” was half-buried under piles of gravel, broken-up concrete, wood chips and rock. The sweep of tires over the freeway had filled my ears for a while and lulled me into a false state of calm, countering the adrenaline building up as I approached the end of the road. The sun was setting, casting a yellow haze through the cracks in the clouds. I stood still at the end of the road, watching the grass sway and the clouds churn, still withholding their rain, before following a thin trail that lead into the bushes and over the small wooden footbridge. I stopped for a moment, thinking of the brown smudge I had seen in the satellite image and the chipped, peeling wood under my thin flip-flops.

A concrete structure stood like open arms beneath the freeway, and I slowly turned toward them, following the trail. I stopped, this
time unable to move as I saw the tunnel ahead of me. Its corners were pitch black, and a dim light shot at an angle through the metal gutter. I could see the other side, a small doorway into a lighter area, suggesting the outline of a fence covered in vines, and grass swaying in the wind. The floor of the tunnel was rock-hard dirt that had to have been mud at some point. Now frozen in time were the hoof marks of horses that had passed through however long ago. The walls held patches of graffiti that were chipping and wearing off. I could not see what could be leaning against the wall, or sleeping on the ground, or crawling about the darkest parts of the tunnel. I could hear the occasional drip of water, the sound so clear and sharp that it cut through the rush of the trucks and cars whizzing past right above me. I stared for a bit longer, feeling my eyes being drawn inwards towards the streaks of light coming through the gutter. I turned and walked away.

For the next few months I dreamt of that tunnel and watched with curiosity as it grew another meaning in my mind that stuck out like a tumor every time I saw it in my head. Between homework problems, I would go onto my computer and look at the satellite images, turning them back in time and seeing how the land had changed.

One image, taken in 1948, was a black-and-white photo with the stunning clarity of film. In this image there was no freeway, and the golden hills extended far into where the budding suburbs were growing. In 1948, a square of land down the street from where I lived held two little homes surrounded by an orchard and a large, beautiful meadow. In 2016, the same square of land held 39 houses, packed together with their tiny backyards and short front lawns.

Before the freeway was built, there were only grassy hills with cattle grazing and paths into the Santa Cruz Mountains. The tunnel, I guessed, must have been made so that cattle could pass through to graze on the other side. Now, of course, houses and yards, parted by
big fences and paved roads, filled the area. There was no purpose for the tunnel now. I didn’t think anyone had entered it for years.

One evening, I was feeling gloomier than normal. I was inside our cramped apartment, the food my mom was cooking was hissing on the stove, my dad was fuming on the couch, the TV was blaring, and my brother was off hiding in the closet of our room, fingers on his video game. My phone was buzzing nonstop with texts from my friend who was panicking over something, and I was failing to calm her. I was lying on the dirty carpet, the stress of life pressing down on my lungs and filling my throat and eyes. My mom was silent, but I knew if she had been in a better mood, she would have told me to go take a walk. When I told her I was going out, she nodded without a second thought. I turned off my phone and left quietly so my dad would not hear.

Outside, it was beginning to get dark; the sun was already below the Santa Cruz Mountains and shadows were engulfing the neighborhood. I walked up Alameda de las Pulgas, through the little shops and thick neighborhoods, watching the orange gradient in the sky above the black silhouettes of trees and roofs slowly turn to the deep hues of twilight. Around me dogs were being walked, baby strollers pushed and windows in houses lit up. I looked in at families sitting down for dinner, children playing with their toys and lonely people watching their televisions.

I had an idea of where I was going when I turned off the Alameda onto a dark, twisting road where there was only one street lamp every two blocks and the houses were large and spread out. The occasional black SUV or loud sports car shot through the darkness. It was pitch black now; the sky was clear and I knew the moon would rise any moment now.

I turned down a road with a sign that read “No Outlet.” It seemed here the city had given up on installing street lamps altogether and instead let the little lights above mail boxes lead the way. The moon rose above the East Bay hills and cast long organic shadows across the asphalt. I could hear the rush of the freeway, the thick tires on gravel, the roar of truck engines, the gurgle of motorcycles, and the sweep of air being displaced. I saw the open arms of concrete just beyond someone’s property, and I ducked under their old-fashioned wooden fence, the kind you see at the edge of ranches that is too high for horses to jump over, but is easy for smaller animals to scamper through. I rushed, crouched down, through the long grass surrounding their house and weaved through their small, overgrown orchard of olive trees, their waxy leaves white as if frosted in the cold moonlight. I heard the barking of dogs erupt from another person’s house, and I broke into a sprint over the uneven ground, thistles combing across my bare legs. I jumped into the air and grabbed the wooden rungs of a locked gate and threw myself over it.
I landed in a small pen, tall fences on three sides and the tunnel ahead of me. Plants had overtaken each of the fences, some dry and thistle-covered and others thorny and vine-like. The tunnel was thick and dark, parted in its center by streaks of pale moonlight, making a crumpled square of light on the uneven ground. On the other side of the tunnel, I could see the face of a hillside bathed in the moon’s light. I stared through for a while, letting the growl and howl of dogs behind me die down. I thought I could see something moving, not in the tunnel but on the other side, way up on the hillside. White like a sheet, the shape of a figure stood as tall as a human. It moved ever so slightly, wavering slightly as things do in the dark. My eyes were failing me; grey spots were engulfing parts of my vision the same way colors burst into your eyes when you rub them too hard. Now the dogs were silent, and I entered the tunnel quickly and quietly. The walls echoed and shook each time a car went over. When I stood in the light of the moon in the center, I looked down and could see my reflection against the metal grate looking back at me on the still water. I thought briefly back to the sunny day in the car when we had driven by and I had seen the grate from above.

That odd frame of the hillside that had been so small at the other end slowly grew larger as I got closer to the opening. The white figure seemed to grow smaller and smaller on the hillside as the landscape around it expanded. I couldn’t see where I was stepping, as if I were walking through a black fog that went up to my hips. I felt the tickle of moths grasping my ankles and then fluttering off. The walls groaned with echoing noise that seemed to express enigmatic longing. As I left the darkness of the tunnel and emerged onto the thin trail beside a single oak, before me lay the quiet open landscape of the hills and the oak forests with the black Santa Cruz Mountains looming above them. The grass was silvery and moved in shining waves as the wind passed over. Cars burst into and out of the quiet soundscape of crickets and wind through leaves and rustling in the bushes. The white figure was still standing on the hill, blurry in the low light. I didn’t feel threatened at all; I doubted they could see me, but there was something so calming and comfortable knowing I was not alone. I continued forward, straight off the trail, losing sight of the figure as I went down a steep grassy hill, the stalks brushing against my shins and the hard, dusty ground crumbling under my feet. I moved quickly into a little valley that curved away from the freeway. Soon all I could hear were the high-pitched ribbits of the thousands of tree frogs in a neighboring grove of trees and the crush of crisp, drought-laden ground under my feet.

I started up a steep hill again and came onto a ridge where everything was darker than before. The moon was behind a cloud and so every stump, every fallen branch, every jutting rock and thick shrub became a vague shadow in front of me. I thought of the coyotes and bobcats I had seen wandering the hills, and wondered if I would see the green reflection of their eyes in one of the shadows. To my left, the lights of the cities surrounding the bay flickered and blinked, reflecting off the black water. I heard a soft shuffle and sigh from down the ridge and saw, once again, the white figure, standing still with two faintly clear legs and a long silvery body, dimmer now that the moon was gone. I was transfixed, my muscles tight, my teeth clenched, my mind in awe. We looked at each other, the singing of the tree frogs and crickets fading into the back of my mind. I was terrified but warmed; I was not alone.

I backed away and ran down the hillside, turning every other moment to see it standing still there on the ridge top, calm and serene, staring at me with knowing eyes. As I ran back towards the tunnel, the chorus of tree frogs returning to my ears, the figure resolved itself in my head into what it was—a white horse, ever focused and facing me, the rest of its four-legged body hidden by my perspective. I looked back once more and saw for the first time the vague outlines of darker colored horses standing half-asleep on the hillside. As I paused by the mouth of the tunnel, hands on my knees, breathing heavily, the lizards lying on the warm cracked ground crawled away from me. Maybe it didn’t matter what the tunnel’s purpose had been all those years ago. I entered it silently and then broke into a sprint. Maybe, for the forgotten tunnel, it was enough to be filled with life again for just this one night.
We award the Ilona Karmel Writing Prizes each May. The competition was named in honor of the late Ilona Karmel, a novelist, poet, and Senior Lecturer in MIT’s writing program. Throughout her teaching career, Karmel’s outstanding contributions to creative writing at MIT were her inspirational teachings and relationships with students.

There are 17 prizes, for everything from poetry and fiction to engineering writing and writing on the arts. The piece published here, by MIT physics major Kishore Patra, was his winning submission for the Robert A. Boit Writing Prize for short stories. You can read more selections—and see a list of all winners—at cmswm.it/karmelprizes.

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But her mother might not let her go back again. How could she return home without the chillies? How could she fail her mission so easily? Beads of sweat appeared on her forehead. She paced up and down near the shop, feeling anxious. Her father would not be proud of her anymore.

The Green Chillies

Customers would start trickling as soon as he would set up everything. Between rapidly changing the weights on his hand-held scales, Mantu never failed to complain about how much commission he had to pay to the middle man. He would complain about failing crops around the world, even if the crops were doing fine. He would tell stories of how the transport union strikes had caused the price hike. He would meticulously explain why he was charging two rupees for a lemon. If anyone tried to bargain with him, he would start all over again, telling them his stories for the price hike until the customer gave in. It was impossible to beat him in a battle of bargaining. The shop was full with people when Arya arrived. There was a constant sound of metallic weights clanking against the scales, interspersed with Mantu yelling the prices of the vegetables and the consequent disgruntled voices of customers. The cabin smelled of the incense sticks he'd offered to the Goddess that morning.

Squeezing past the women clad in colorful saris, who were scrutinizing every tomato, every potato and every bean, Arya reached the counter. Mantu was busy telling his usual stories as he weighed onions on his scales. Mantu couldn't spot Arya's short body from behind the counter. She raised her arm as high as she could, waving the five rupee note and demanded,

“Mantu uncle, give me green chillies for two rupees.” Mantu looked around to see where the sound came from. “Uncle, here! Green chillies for two rupees.”

Arya waved the five rupee note again. Mantu looked upset about being interrupted while telling a young lady about the strike in Mumbai because of which the potatoes were twelve rupees a kilo today, two rupees higher than yesterday's price. He looked at Arya from his glasses on the tip of his nose and then looked around her to see if he could spot her mother.

“You came alone today? Where's your mother?” Mantu enquired.

“Yes! I am came alone. She is cooking so she sent me to get the chillies. Can I have some?” Arya said, waving the five rupee note in front of the counter and at the same time feeling pleased that Mantu noticed that she had come to buy the chillies all on her own.

“Bring me exactly two rupees. I don't have the change right now,” Mantu replied and then continued telling his story to the young lady.

“But Mantu Uncle...”

Mantu wasn't paying attention to her. Bewildered by his lack of interest in the five rupee note, Arya looked at the note again, wondering what was wrong with it. The number 5 was clearly marked on the top right corner in shiny blue color. Below the number was the face of a smiling bald man wearing round glasses.

“One, two three, four and five. Five is more than two. Why does Mantu not want it?” she wondered as she counted on her fingers. She squeezed past the sari clad women once again and went out of the shop. She thought of going back to home to ask for “ exactly two rupees”. But her mother might not let her go back again. How could she return home without the chillies? How could she fail her mission so easily? Beads of sweat appeared on her forehead. She paced up and down near the shop, feeling anxious. Her father would not be proud of her anymore. No more patting on the shoulder. Rishi would laugh at her failure, like he laughed at the clown in the circus show last week. And
then, her father would be angry at mother for not making good food. Her mother would be upset with her for failing to bring the chillies. She might never get to go out again, not for shopping, not even to the park.

“No! We must bring the chillies home,” she told her Barbie.

Her mother needed the chillies before the lentil soup began boiling. She could not lose any more time. Going back home for the “exactly two rupees” was not an option anymore. She looked at the note again, carefully. Suddenly a neat idea popped into her mustard-oil-smelling head. She counted on her fingers again and beamed with pride. She carefully tore the five-rupee note into two equal halves. And then each piece into two more halves.

She counted the pieces, “One, Two, Three, Four. Four?” Realizing that she had only four pieces, she tore one of the pieces into two, making three large pieces and two small pieces in total. Arya ran back to the shop and squeezed past the women still struggling to decide which tomatoes to pick. She went up to Mantu, who was still explaining the details of the strike in Mumbai. She carefully separated out two large pieces from the five she had torn the note into, and placed them onto the counter.

“I brought “exactly two rupees” for you. Now quickly, can you give me the chillies?” A confident Arya demanded.

Mantu stopped telling the story. He looked stunned, his mouth wide open and his eyes fixed in astonishment at the torn pieces of the note.

“Uncle, I need the chillies now!”

Mantu picked up the two pieces and looked at them suspiciously through the thick glasses resting on his nose. Arya was growing impatient. She could not understand why Mantu was not giving her the chillies. She had given him what he wanted, she thought. In fact she had given him the two large pieces, which were probably worth more than the “exactly two rupees” and yet he was not ready to budge.

“Uncle! The chillies!” Arya shouted.

Mantu stared at Arya for a while with a twisted eyebrow. He continued gawking at Arya and the torn pieces of notes. Meanwhile Arya was growing more anxious. Her mother would be waiting for her to get the chillies. She hoped that the soup hadn’t begun boiling yet. She just wanted to get the chillies and run towards home, as fast as she could.

Suddenly, she heard Mantu burst into a wild laughter. He fumbled the onions from his scales onto the ground but he could not contain himself. Arya looked around. All other women around the counter joined Mantu and began pointing at Arya and laughing hysterically. Some women clapped vociferously, while others held the side of the charpoy to avoid falling over.

Arya’s face turned red like the tomatoes in the basket. The air around her felt prickly hot. Thick sweat appeared on her forehead, mixing with the mustard oil. Drops of oily-sweat stuck on her thick black eyebrows. A couple of honey bees hovered and buzzed on her head again. But this time, she did not want to scare them away. She tried to focus on the buzz instead of the laughter, but her concentration broke when someone from the crowd yelled.

“Your mother is going to beat the hell out of you today!”

Arya could not hold on anymore. Her eyes filled with warm tears. Mantu’s laughing face looked bigger and bigger through the tear-filled eyes. The images of the women clad in colorful saris, the tomatoes, the potatoes, the torn pieces of notes and the buzzing bees, all seemed distorted and mixed together into an ugly painting. The colors, blue, black, green, yellow and red all seemed to flash in front of her eyes blinding her from the laughing faces. She could hear the raucous laughter of Mantu, followed by giggles and claps from the women. Even her friendly Barbie seemed to be laughing at her. She remembered the clown show, where everyone laughed at the clown uncontrollably at his stupid actions. But this time, she was the clown in the middle of relentless laughter. She waited for what seemed like eons, for the first tear drop to run down her red cheeks. And then she began wailing — first softly and then loudly.

After regaining some of his composure, Mantu picked up the onions he had fumbled onto the ground while laughing. He took a fresh white polythene bag and dropped a handful of green chillies into the bag. He put his left hand into his shirt pocket and searched inside until he found a crisp new five rupee note. Tearing a piece of paper from his billing pad, he wrote in his semi-legible handwriting — “Mrs. Jena, you owe me five rupees for the new note I gave to your daughter. Consider the chillies free.” Underneath the message he scribbled a couple of symbols that were supposed to be his initials. Still laughing, he folded the paper and looked up at Arya. Her face had shriveled up like a dry tomato. She was wailing uncontrollably — her eyes swollen thick. Dark smudges of kohl mixed with tears, had smeared over her face. Some kohl even made it to her lips and into her crying mouth.

Mantu looked at the piece of paper he was about to give to Arya. He paused and looked at Arya again. He seemed lost for a moment, as he turned his head towards the family photo hanging near the image of Goddess Laxmi. He was standing beside his wife, holding in his arms their three-year-old daughter, who seemed to be crying as well. He smiled gently and shook his head to and fro as he slowly crumpled the piece of paper in his hands and dropped it onto the floor.


He handed her the chillies in the polythene bag and the crisp new five rupee note, along with the torn pieces and said with a benign smile, “Take these home and tell your mother what happened. She won’t be angry, trust me.”

“What happened? That’s what I don’t know!” Arya thought. Without saying anything, she took the bag and notes from Mantu. She clasped the notes tightly into her palm, still unsure of what was wrong with her note in the first place. Did she count the “exactly two rupees” correctly? She could count all the way to one hundred. How could she fail to count till two? Or was it the size of the notes that was wrong? She wondered, as she squeezed past the laughing women in colorful saris once again. There was a brief moment of silence as she left the shop.

Then suddenly everyone burst into another round of laughter. But Arya only wailed louder and louder, still unable to comprehend what had gone wrong. Wearing bright pink but oversized sandals, she walked briskly towards home.
Let’s be honest: Even the most disciplined college students don’t pay attention all the time during their classes. The temptations of a hushed conversation with a classmate, a daydream, or any number of digital distractions can be hard to resist.

But one could argue that senior Lilly Chin had an excellent excuse for tuning out during one of her comparative media studies classes last October. She was taking a ten-minute online test to qualify for the popular TV quiz show “Jeopardy!” It was only offered on one specific date, at one specific time—which happened to be during class—so she had little choice. “I was trying not to get caught by the teacher while I was answering the questions,” she later confided to a “Jeopardy!” film crew, barely suppressing a giggle.

In the end, it was worth the risk. Chin went on to become a contestant on the show, made it to the finals, and walked away with the college championship title and the tidy sum of $100,000. Sworn to secrecy since the show’s January taping, Chin was able to savor the victory tonight at a final episode screening held in Room 4-237, where she was cheered on by dozens of friends and other fans from the MIT community.

THE MAKING OF A “JEOPARDY!” CHAMPION

Chin was one of thousands of students from schools around the U.S. who applied in October to be contestants on the show. Of those, 250 were invited to in-person auditions in New York City in November, which consisted of a written test, gameplay, and an interview. She learned she’d made the cut—a total of 15 students and one alternate—in December, and the show was taped Jan. 10-11 in Los Angeles.

Chin, an electrical engineering and computer science major with a minor in mechanical engineering, credits part of her success to her curiosity about media, which led her to also minor in comparative media studies. She loves “investigating different forms of media, whether it’s film, video games, or children’s literature—[it’s] the same curiosity which leads me to seek out factoids about these media, and which tend to get asked about more on ‘Jeopardy!’”

A native of Decatur, Georgia, Chin is no stranger to trivia competitions; she participated in quiz bowls from 5th grade through high school. She prepared for “Jeopardy!” in myriad ways, like reviewing her old trivia books, reading web comics, listening to Top 40 music, and generally spending lots of time “goofing off on the internet.” She found creative ways to bolster her knowledge of subjects she didn’t know well; to address a weakness in history, she crammed The Cartoon History of the Modern World.

Chin enlisted the help of MIT friends to study and practice her gameplay, including playing Protobowl, a real-time, multi-player quiz bowl application created by her classmate, senior Kevin Kwok. She also sought advice from two MIT connections who had “Jeopardy!” experience: her former graduate resident tutor, Philip Arevalo (who motivated her to apply for the show), and Pranjal Vachaspati, ‘14.

Preparation aside, Chin also had a few tricks up her sleeve. One of them was buzzer strategy. “I think the game is actually more about buzzer strategy than trivia,” she says. Timing is everything: buzz too soon, before the show’s host Alex Trebek finishes reading the clue, and your buzzer will get locked out for a fraction of a second—enough time for an opponent to buzz in. The key is to time it precisely when Trebek is done speaking.

Her board strategy paid off, too. In the more conventional approach, contestants work their way through one category, moving from lower-value clues at the top of the board to higher-value clues at the bottom. Others, like Chin, prefer to jump between categories and choose clues further down the board. “It’s a bit of a controversial strategy,” she says. But the advantage is that skipping around the board can throw off your opponents and increase your odds of finding the clue with the Daily Double. “The Daily Doubles aren’t evenly distributed,” Chin explains. “People have run stats and found they tend to be in the fourth row or so.”

Being on the show was “surreal,” Chin recalls, smiling broadly. “There was a moment when all the contestants realized that this was

1 protobowl.com
actually happening. After the game, everyone’s hands were shaking.”

To combat her own nerves, she channeled her experience on the trap shooting team (part of the MIT Sporting Clays Association), in which players shoot moving clay targets with a shotgun. “The coach is always like, ‘Don’t keep track of the score, just take it one shot at a time,’” she says, “because especially for shooting, any sport, you need to be calm. As soon as you start thinking, ‘Oh no, what if’s’, then your game gets off and you miss everything. So I think that really helped.”

“NERD PRIDE”

Throughout the course of the two-week tournament, as word spread about her progress, Chin developed quite a following on the MIT campus. “The best part of being on the show has definitely been the great outpouring of support the MIT community has given me,” she says. “At first, I was a bit embarrassed about being on national television and tried to keep the whole thing under wraps. But soon, I found that the more people that I told, the more I found that people were eager to help and support me.”

President L. Rafael Reif, Chancellor Cynthia Barnhart, and Vice President and Dean for Student Life Suzy Nelson were among those rooting for her. “If the clue is ‘Nerd Pride,’ the answer must be, ‘What was our overwhelming reaction when we learned that Lilly Chin just won College Jeopardy?’” Reif wrote in an email to Chin. “Even better, for this longtime professor: You’re not just MIT, you’re EECS! Lilly, I hope you have a moment to savor this terrific achievement.”

“[Provost] Marty Schmidt and I have decided you are the Tom Brady of ‘Jeopardy’—great job!” Barnhart said in an email to Chin, following Chin’s second-to-last appearance on the show. Nelson wrote Chin after her strong showing in the first week: “I’m so proud of your Jeopardy performance…Plus, love your strategy of finding those Daily Doubles—bold and fearless.”

Chin developed quite a fan base among MIT students, who found creative ways to show their support, throwing screening parties and sharing their favorite moments on social media. One friend, Shi-Ke Xue ’16, created a series of gifs of Chin on the show and shared them on Reddit.

LOOKING BACK, AND AHEAD

In retrospect, Chin admits she feels a bit bad about taking the “Jeopardy!” online test during a CMS class last fall, adding, “That is one of my favorite classes.” Luckily, her professor, T.L. Taylor, who also followed her progress on “Jeopardy!” (and is now privy to Chin’s secret about the test), loves the anecdote. “How very apropos,” she says, “considering it was a class on games and culture!”

Chin, who is now pursuing a Ph.D. at MIT in Electrical Engineering and Computer Science, says she’ll use the prize money to pay off college loan debt and to travel to a few research conferences around the world on video game studies—a media that continues to pique her boundless curiosity.

Listen to our podcast with Lily Chin at cmswm.it/lilly-chin-jeopardy.
The Center—with CMS/W research assistant Mariel Garcia-Montes and faculty affiliates Edward Schiappa, Jing Wang, Ian Condry, William Uricchio, and Sasha Costanza-Chock and based as a group within the MIT Media Lab—had a productive year. It supported the Civic Media Collaborative Design Studio, taught by Costanza-Chock. Projects focused on youth media and gentrification by partnering with local youth arts and media organizations and a local innovation school for middle and high school students.

Researchers wrote extensively on media issues surfaced by the 2016 elections, including fake news, online anonymity, polarization, and bias in technology design. Garcia-Montes wrote about podcasting for movement building and, in November, about the role of civic media in the emotional response to lost elections. Research scientist Rahul Bhargava used the Media Cloud platform to unpack race-freighted media coverage of NFL quarterbacks.

The Center also received international attention for director Ethan Zuckerman’s work on establishing a Media Lab “Disobedience Award”; in March, a donor provided $250,000 to fund a prize for “responsible, ethical disobedience.” After receiving more than 7,800 nominations, Zuckerman, Costanza-Chock, and ten other judges honored scientists Dr. Mona Hanna-Attisha and Professor Marc Edwards for facing “harassment and ridicule for their work and risk[ing] academic sanctions for defying conventions of peer review as they sought to bring attention to Flint’s water crisis before more people were affected.”

cmsw.mit.edu/cci

In conjunction with the Office of Digital Learning the Education Arcade has continued assisting the Tata Institute for Social Sciences in Mumbai in the CLIx project which is developing innovative, inquiry-based high school curricula for government schools in India. It has undertaken similar efforts to assist the XQ schools in re-imagining high school curriculum in the U.S.

Working with colleagues in the Scheller Teacher Education Program, Ed Arcade continued the development of several tools that enable students to learn programming and system thinking through the creation of their own applications. These tools include StarLogo Nova, a web-served tool for building 3D simulations, TaleBlazer, which facilitates the creation of location based mobile games, and GameBlox, an all-purpose game development tool. These projects have all involved contributions from UROPs, computer science master’s students, and CMS/W research assistants.

Work continues with the Smithsonian Institution on the creation and testing of a new game promoting greater understanding of both American history and engineering, focusing on upcoming 150th and 50th anniversaries respectively of the transcontinental railroad (1869) and the first moon walk (1969). The Ed Arcade is also partnering with University of California, Irvine in founding a new annual conference dedicated to connected, exploratory, and playful learning, filling a gap left in the field by the abandonment of several previously well-attended conferences.

educationarcade.org
As part of the MIT Game Lab’s mission to bring together scholars, creators, and technologists, the Lab’s efforts this past year have been devoted to exploring the use of play in varying contexts, including education and technology. The seven courses offered by the Game Lab, connected with its research and development opportunities, have maintained MIT’s standing within the Princeton Review’s top schools for undergraduate or graduate study of game development for an eighth year running.

In Fall 2016, the Game Lab co-hosted the Boston Festival of Indie Games for the fourth year. Over 3,000 people attended the event across multiple locations at MIT to see games developed by 300 invited developers and studios, giving students direct access to practitioners in game development. The event was covered in national media, placing MIT and the MIT Game Lab as a center for independent game development.

The Lab is in its second year of a three-year project with members of BBN and Northeastern University to use games to help understand the psychology behind insider threat in information security contexts, funded by a $100,000 subcontract on a BBN-managed contract. Most of the startups have an MIT alum as a founder and one consisted entirely of MIT undergraduates.

UPDATES

HyperStudio—MIT’s Laboratory for Digital Humanities—has continued to advance its efforts in developing innovative digital tools and web applications for research and education in the humanities and social sciences, increasing its outreach efforts, as well as creating new curricula initiatives for MIT students.

The worldwide user base of HyperStudio’s NEH-funded, online educational multimedia annotation project “Annotation Studio” has grown significantly to almost 10,000 educators and students. Annotation Studio has been integrated into more than 850 humanities curricula at universities, community colleges, and high schools. In addition, 26 educational institutions have set up their own site-specific installations of Annotation Studio, including Harvard, Vassar, Barnard, Hofstra, Humboldt University (Germany) Wellesley, Stony Brook and others. The project (Principal Investigator: Jim Paradis, Co-PI: Kurt Fendt), funded through two multi-year NEH Digital Humanities grants (awarded in 2011 and 2013), is open source which has allowed other institutions to integrate Annotation Studio into their own projects. The HyperStudio team has continued to expand the functionality of Annotation Studio by developing a new tool, "Interlinking the Global Internet: the Value of Satellites," which investigates the role of satellites in providing internet connectivity in rural regions in Southern Africa, Central Asia, and North America. The study will focus on the activities of emergent satellite operators such as O3B and OneWeb. Members of our lab will be attending the Satellite 2018 Convention in Washington DC in March 2018.

GMTaC is also organizing a workshop on Digital/Social Media and Refugees for Feb 21-22, 2018.

globalmedia.mit.edu

The new Global Media Technologies and Cultures Lab (GMTaC Lab) is a space for collaborative research that explores the use of media technologies (satellites, television, the internet, social media, and mobile phones) in diverse international contexts. Our projects link media usage to issues of geopolitics, surveillance, the environment, social justice, and art. Researchers in our lab use fieldwork, ethnography, community engagement, and creative research to investigate the usage of media technologies in urban and rural settings in different parts of the world. We believe there is much to learn about media technologies beyond the centers of industrial and political power, and are particularly interested in working with marginalized, underserved, and vulnerable communities. We often share our findings with computer scientists or designers so that next generation technologies can be more socially-informed and serve a broader array of public interests.

The GMTaC Lab was awarded a Skoltech Research Grant to support a project called "Interlinking the Global Internet: the Value of Satellites," which investigates the role of satellites in providing internet connectivity in rural regions in Southern Africa, Central Asia, and North America. The study will focus on the activities of emergent satellite operators such as O3B and OneWeb. Members of our lab will be attending the Satellite 2018 Convention in Washington DC in March 2018.

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globalmedia.mit.edu
“Idea Space”, that connects the close reading/annotation process to academic writing. Idea Space allows students to select, filter, and organize their annotations and use them as the basis for essays, class discussions, and presentations. Both projects have been presented at invited talks at international conferences in Germany, Switzerland, and Spain as well as numerous workshops and conferences in the US.

Work on Prof. Kenneth Manning’s project “Blacks in American Medicine” project has resulted in an online prototype that features more than 23,500 biographies of black doctors along with tools for data filtering and visual representation, including a new version of HyperStudio’s advanced, open source timeline tool “Chronos”. Goal of this collaboration is to bring Prof. Manning’s extensive research on Blacks in American Medicine online. Based on biographical data of black doctors from 1860 - 1980 along with tens of thousands of personal and institutional documents as well as audio interviews, the project aims to tell the unique history of black medical professionals in America. Blacks in American Medicine will be part of HyperStudio’s new “Active Archives Initiative” and seeks to engage diverse audiences in the understanding of a marginalized narrative within America’s history by exploring how these professionals interacted and engaged with both the black community and the American public at large.

HyperStudio’s new “Active Archives Initiative” aims at rethinking how users will interact with digital archives. Based on many years of experience in building online archives and tools for the humanities, this initiative seeks to empower users to engage in ‘story-making’, by discovering, interpreting and organizing archived materials to construct new representations of the past. Simple and enjoyable to use, and designed with a wide range of prospective users in mind, from professional scholars to high school students, Active Archives combine rich sets of standards-based resources along with novel user interface designs and a set of rich scholarly and educational tools. The first projects as part this initiative are new versions of the Blacks in American Medicine and the US-Iran Relations projects.

A new collaboration with WBUR’s “The Artery” seeks to expand HyperStudio’s mobile art discovery app “Artbot” and integrate it with new art-related offerings for Boston’s art community. Artbot uses information extracted from museum and gallery websites and uses sophisticated machine learning techniques to suggest related art events based on users’ interests.

HyperStudio will be offering a second, advanced Digital Humanities subject starting in AY2018. Based on the successful, currently offered, project-based Digital Humanities subject, the new course offering will focus on machine learning and critical data visualization techniques for humanities-related data. The subject will be taught by HyperStudio’s executive director Kurt Fendt with support by one of HyperStudio’s Research Assistants.

During the next academic year, HyperStudio will be hosting a course six undergraduate student as part of the newly established SHAESS-ECECS SuperUROP program. The selected student, will be working on the integration of machine learning techniques into HyperStudio’s existing and new archives, tools, and projects.

HyperStudio’s weekly email newsletter for Digital Humanities “h+d insights” has further solidified its role as one of the key information sources in the field and about HyperStudio’s work. Produced by one of HyperStudio’s Research Assistants, the newsletter has now more than 950 active subscribers. HyperStudio’s Twitter account now has more than 2,300 followers.

hyperstudio.mit.edu

The Imagination, Computation, and Expression Laboratory (ICE Lab), established at MIT in 2010 by Associate Professor D. Fox Harrell, researches and develops artificial intelligence and cognitive science-based computing systems for creative expression, cultural analysis, and social change. Harrell is currently pursuing several endeavors advancing his research on virtual identity: (1) the National Science Foundation (NSF) funds his work using avatars to support local middle and high school students from groups typically underrepresented in STEM fields in seeing themselves as learners and doers of computer science, (2) an MIT CSAIL-Qatar Computing Research Institute (QCRJ) collaboration funds his research on culturally-specific everyday uses of virtual identities in social media and videogames (with the Persian Gulf region as a case study), and (3) an MIT Center for Art, Science, and Technology (CAST) grant helps fund The Enemy project using virtual reality technologies to help engender empathy in the face of global conflict (e.g., in Gaza, Congo, and El Salvador). Support for these projects totals $1.35 million.

Outcomes of ICE Lab projects have taken the form of interactive narratives, videogames, and social media systems that can adapt to the cultural needs of diverse users and help educate diverse learners. Examples include Grayscale, an interactive narrative modeling ambivalent sexism, Mimesis, an online game that models social and psychological impacts of a subtle form of racism, and MazeStar, an educational computer game creation platform to engage students in learning computer science concepts while seeing themselves as powerful STEM learners and doers.

The ICE Lab has also developed an AI tool called AIRavatar to analyze and reveal patterns in how people develop and use virtual identities. For example, it has used AIRavatar to empirically discover and demonstrate statistical patterns of racial and gender discrimination in videogames, including a hit that has sold over 9.5 million units globally.

To disseminate such results, the ICE Lab has produced a number of publications that have been presented at multiple internationally recognized conferences and venues, including the ACM, AAAI, Digital Humanities, AERA, IEEE, and Harrell’s work and ideas have been featured in publications including New York Times, BBC.com, the New Yorker, the Guardian, Nieman Reports, Boston Business Journal, and the Communications of the ACM.

icelab.mit.edu

icelab.mit.edu
The Mobile Experience Lab will soon revert to its original name of the MIT Design Lab, a vision of co-founders Bill Mitchell and Federico Casalegno. This name better reflects the research and methods of the lab. Directed by Federico Casalegno, Associate Professor of the Practice, the Design Lab will seek to reinvent and creatively design connections among people, information, and places. Using cutting-edge information and mobile technology, the lab will improve people’s lives through the careful design of new social spaces and communities.

In January, the lab began a three-year sportswear project with Puma. It will include exploring smart material to improve performance for shoes and creating unique connected shoes which ultimately improve users’ performances and connectivity.

In March, the lab’s MIT Tangible Map was installed in the new Atlas Service Center in E17. The map provides personalized information for visitors and community members to better navigate the MIT Campus and resources. It is open source to allow for future additions.

In April, the lab held the third “Make Me ++” Hackathon in memory of Bill Mitchell. BNP Paribas Cardif sponsored the event with the theme of Connected Care. More than sixty hackers of various backgrounds assembled for a weekend to develop new and creative embodiments of caring and received eight thousand dollars in prizes.

In partnership with ENI, within the MIT Energy Initiative, the lab has continued its research in the field of the internet of things applied to wearable technology for safety in the workplace. Creating smart clothing that monitors and advises on the physical condition of workers has required extensive testing and research. The lab was able to develop smart vests, jackets, shoes and gloves equipped with multiple kinds of sensors and haptic feedback to prevent accidents in the workplace. The final phase of the project culminated in pre-
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The MIT Open Documentary Lab (ODL) in September began developing its Co-Creation Studio after being awarded $85,000 from the John D. and Catherine T. MacArthur foundation for a planning grant. The studio researches and incubates co-creation methodologies. As part of this work, ODL began a project exploring the future of work and AI together with MIT CSAIL’s lab.

Supported by a three-year $750,000 grant from the John D. and Catherine T. MacArthur Foundation, the lab continued its fellows program, lecture series, convenings, and resource development.

In the spring, Professor William Uricchio and Dr. Sandra Rodriguez offered MIT’s first course on Virtual Reality, CMS S60, Hacking VR. Through a grant from MIT’s CAST, the course was accompanied by a VR lecture series open to the MIT community and the public. Oculus Story Studio supplied the equipment.

In May, the lab hosted a two-day conference, Update or Die, Future-Proofing Emergent Documentary Forms. The conference explored preservation and access strategies and concepts for digital documentary with experts from a wide range of disciplines including digital art, games, technology, and archiving.

In June, the lab received a $125,000 grant from the Ford foundation to write a white paper on co-creation history, methodologies, and best practices. This work began in June 2017 and will be completed by May 2018.

ODL continued to develop Docubase, a curated, interactive database of the people, projects, and tools transforming documentary in the digital age. It also updated its Moments of Innovation site, Uricchio’s visual white paper about the history of documentary and technology. In September, the lab launched a Medium publication together with Tribeca Film Institute, Immerse: Creative Discussion of Emerging Non-fiction Storytelling, with contributions by MIT faculty, researchers and students.

The lab’s faculty, staff, and students continued to speak, present and showcase their work at premiere festivals and conferences around the globe.

TEACHING SYSTEMS LAB

Newly incorporated into CMS/W, the MIT Teaching Systems Lab investigates the complex, technology-rich classrooms of the future, and the systems we need to help educators thrive in those settings. Broadly speaking, our efforts fall under three efforts: 1) designing and researching the future of online and blended learning for educators, 2) developing a series of teacher practice spaces that allow educators to rehearse for and reflect upon important decisions in teaching, and 3) leading pilot efforts to “see the future first”—to identify future trends from academia and the working world—and to identify how to support K-12 systems in preparing for those futures. TSL’s aims for this year included:

• Funding, developing, and launching two Microsoft-funded massive open online courses (MOOCs) for school leaders: Launching Innovation in Schools and Design Thinking for Leading and Learning

• Funding, developing, and piloting a series of Google-funded online and blended learning experiences to help teachers address the negative effects of unconscious bias

• Regularly testing new innovations with pre-service teachers, in-service teachers, teacher educators, and present our work widely at conferences and other scholarly venues

• Providing continued support to the development of the Woodrow Wilson Academy of Teaching and Learning

• Supporting online learners across Harvard, MIT, and Stanford by developing and delivering targeted psychological supports based on social psychology and behavioral economics

We won a $650,000 grant from Microsoft to develop two courses for school leadership. In their first runs, these courses had a combined enrollment of 18,000 students from over 160 countries. We published two research reports demonstrating how the courses led to tangible impacts on educator practices; for instance, one participant committed to bringing design thinking to the reform efforts in Worcester and published an op-ed in the Worcester Telegram and Gazette.

We also won a $150,000 grant from Google to test the use of our mobile simulation platform, TeacherMoments, with computer science teachers addressing issues of unconscious bias. We developed multiple scenarios and developed partnerships with code.org, the College of St. Scholastica, Hartford, CT, and the Explore Computer Science and Mobile Computing Science Principles communities for field-testing these efforts.

We hosted 6 lab playtest events at the
MIT Office of Digital Learning (ODL), where teachers and teacher educators offered feedback on our prototypes and learned more about games and simulations in teacher education, as well co-hosting two salons on Education Technology and Equity with Data&Society in New York and the Connected Learning Alliance at UC Irvine.

We presented our research at dozens of events, including annual meetings, conferences, and invited talks. We published papers in *Science*, *AERA Open*, *Bridge: The Journal of the National Academy of Engineering*, and we have work forthcoming in the *International Journal of Artificial Intelligence in Education*. A full list of TSL publications can be found at tsl.mit.edu/
publications.

We continued our design and development support for the Woodrow Wilson Academy of Teaching and Learning, developing new challenges and supporting an overhaul of their design process, and developed simulations and practice spaces for the Academy, including Eliciting Learner Knowledge, TeacherMoments, and MetaRubric. Two students from EECS completed their MEng theses on these projects.

With funding from Woodrow Wilson, we completed one grant cycle of the Teaching and Learning Innovation Grants and started a second cycle, with awards going to support the Edgerton Center, the MIT Media Lab Learning Initiative, and the INK-12 project in CSAIL.

We deployed targeted interventions to support student plan-making and sense of belonging in all publicly available MOOCs published through MITx, HarvardX, and Stanford OpenEdX, reaching tens of thousands of learners in one of the largest experimental studies ever conducted in MOOCs. We won a $300,000 EAGER grant from the National Science Foundation to analyze the data.

Lastly, Lab director Justin Reich was appointed Assistant Professor in Comparative Media Studies. He was also appointed as Faculty Associate of the Berkman-Klein Center for Internet and Society at Harvard University.

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THE TROPE TANK

The Trope Tank, directed by Professor Nick Montfort, is a lab for research, teaching, and creative production. Its mission is to develop new poetic practices and new understandings of digital media by focusing on the material, formal, and historical aspects of computation and language.

The lab’s work on literary translation projects continued. This included work on Renderings, a project to translate computational literary work into English, and on the newer Heftings project, which facilitated collaboration on “impossible” (or at least very difficult) literary projects. Work on these and other projects was done by the Trope Tank’s international team, including a francophone postdoctoral researcher and a writer in residence from Argentina.

The Purple Blurb series included a multilingual reading, Poetry Across Borders, that took place on MIT’s Day of Action/Day of Engagement. Also in the series was Salon 256, a presentation and discussion of very short (256 byte) creative programs. It came at the end of a semester of productive work on small-scale programs that all the core members of the Trope Tank participated in.

The Trope Tank continues to host the monthly meetings of the local interactive fiction club, the People’s Republic of Interactive Fiction, as well as class visits and discussions with visiting researchers and colleagues. Maintenance, repair, upgrading, and the addition of new hardware and software continued in the lab. An area in the space was developed with Macintoshes from different eras, along with software, manuals, and books for these systems, and researchers spent a day exploring the resources.

The lab’s equipment and researchers supported a display of Commodore 64 and VIC-20 work at the Boston Area demoparty, @party; Commodore 64 work and projections at the New York City demoparty, Synchrony; Commodore 64 projections at the experimental dance music event Beat Research in Cambridge, and other exhibits and events.

For the first time, WRAP was able to provide detailed comments to the hundreds of students who took the Graduate Writing Exam, as it has developed a process akin to traits analysis incorporated into the holistic scoring, and used this to generate targeted descriptive and instructive feedback. WRAP is collaborating with the program in Leadership in Global Operations to provide communication instruction for graduate students, from their internship to their thesis, which it will do through an integrated workshop model augmented by a series of online communication instruction modules. WRAP also provided workshops on professional communication to students in the MIT Energy Initiative, and a thesis-writing bootcamp for graduate students in Mechanical Engineering.

WRAP’s affiliated research lab, ArchiMedia, investigates how digital media is shaping professional communication practices, and how digital tools can be used (and designed) to teach professional communication. Its past projects include a collaboration with CSAIL to design an online application to teach students how to paraphrase (as part of a larger research study into how MIT undergraduates and graduate students use sources in their academic writing), the development of online communication instruction modules on MITx for Materials Science and Engineering and for Chemical Engineering, and an analysis of the emerging genre of graphical abstracts.

With funding from the National Science Foundation, WRAP is participating in a multi-institutional project (with Dartmouth, the University of Pennsylvania, North Carolina State University, and the University of South Florida) to study the effects of teaching undergraduate STEM students how to effectively peer review each other’s texts. This project involves collaborating in the

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trope-tank.mit.edu
design of an online peer review platform that also functions as an analytical tool for collecting and studying data about how students provide, and respond to, peer review. The platform incorporates natural language processing and sentiment analysis to analyze students’ responses in cognitive, interpersonal, and intrapersonal domains.

WRAP received a three-year grant of $240,000 from the Davis Educational Foundation to collaborate with science and engineering faculty to produce “disciplinary reasoning diagrams” of six different STEM fields. These reasoning diagrams visualize relationships between concepts. Students can use the diagram throughout the composing process to map the relationship of concepts in an experiment; to scaffold the process of reading background literature in the field; to storyboard a slide presentation or design a poster; and to outline paths of explanation for communicating technical knowledge to various audiences. Because these diagrams are visual and schematic, they can be remembered easily. WRAP has presented elements of its methodology, the existing diagrams, and the associated pedagogy at the Professional Communication Society, the American Society for Engineering Education, the Writing Research Across Borders conference, and the Recontextualizing Knowledge conference.

Finally, with the aid of an Alumni Funds grant, ArchiMedia has been developing Metalogon, an online tool for rhetorically analyzing speeches and oral presentations. The platform allows teachers and students to upload video recordings of presentations and then to embed commentary on rhetorical elements, which plays back in real time. The tool provides a framework of concepts about the development of ideas, structure, style, and delivery, and as students and instructors use these concepts to provide feedback, the tool also captures annotated segments of the videos for an on-line library of examples.

www.mit.edu/wrap

PERSONAL UPDATES

With the support of the 2017 Levitan Prize and a 2017-18 Whiting Foundation Public Engagement Fellowship, Associate Professor Vivek Bald is on sabbatical this year, working on his documentary film, “In Search of Bengali Harlem,” and developing a digital oral history platform titled “The Lost Histories Project.”

Excerpts from two books of poetry in senior lecturer Ed Barrett’s “Boston Trilogy,” Kevin White (2007) and Boston (2008), have been published in City of Notions, An Anthology of Contemporary Boston Poems (Boston, MA: 2017), edited by Boston poet laureate Danielle Legros Georges. Publication of the anthology was supported by a generous grant from the Boston Mayor’s Office of Arts and Culture. The title “City of Notions” is a reference to a nickname Boston earned in the early 19th century for being a font of innovation and ideas. Its editor Danielle Legros Georges said she sought out poems that depict Boston in a completely unvarnished light, “including those that address head-on such issues as race, social tensions, and cultural and class differences and positions.”


Jason Begy (S.M., CMS, ’10) is now working as a scholarly indexer, focusing on manuscripts and edited collections in the humanities. His website is at jasonbegy.com/indexing.html.

Visiting Artist and war photographer Karim Ben Khelifa unveiled The Enemy, a groundbreaking virtual reality installation at the MIT Museum, in October. Wearing headsets, museum visitors walk through a multi-room 360-degree experience: they stand face-to-face with combatants on opposite sides of long-running conflicts: Israel/Palestine, the Congo, and El Salvador. The combatants deliver testimonials directly to the viewer, Ben Khelifa’s voice prompting them with questions. He developed the artificial intelligence and cognitive science-based interaction models with CMS/W and CSAIL professor Fox Harrell. The exhibit runs through December 31st. Learn more at theenemyishere.org.

Kristina Bjoran (S.M., Science Writing, ’11) has had a busy year. She and her fiancé were engaged in September, and she will join the Microsoft team in late October as a content developer.

Lindsay Brownell (S.M., Science Writing, ’13) joined the Wyss Institute at Harvard University as a Science Writer in April 2017 and writes press releases and other articles for the Institute. She also got her first “real” freelancing piece published in Scientific American; ironically, after she started her full-time job at the Wyss.

Professor Ian Condry is currently on sabbatical to work on his new book tentatively titled “Everything is Free Now, and Why That’s Good for Music and Musicians.” He is conducting fieldwork in Tokyo, Boston, and Berlin, and recently returned from Backnang, Germany, where he observed new “spatial mixing” technology at d&b audiotechnik. He, along with DJ Rekha, recently performed at the Museum of Fine Arts, Boston, for the opening of the Takashi Murakami exhibit. He is organizing a conference called Dissolve Music @ MIT, March 7-9, 2018, which will be an exploration of the leading edges of sound experimentation, music studies, and audio technology. More info at mitdissolve.com.


Over the summer, Kevin Driscoll (S.M., CMS, ’09) and his long-time collaborator Julien Mailland published a book with the MIT Press about platforms and the public
Rebecca Blevins Faery (1940–2017), former Director of the First Year Writing Program, died in Iowa City, Iowa, in May 2017. She joined the MIT Program in Writing and Humanistic Studies in 1999 and headed the First Year Writing Program until her retirement in 2012. Throughout her MIT career, Dr. Faery taught first year (CI-HW) writing courses as well as advanced essay classes; she was also a freshman advisor. She also offered courses cross-listed with Women’s and Gender Studies and was an active member of the WGS community. In 2010, she received a Levitan Award for Teaching Excellence.

Before she came to MIT, Rebecca Faery taught writing at Harvard University, Hollins University, University of Iowa and Mt. Holyoke College.

Rebecca Faery was the author of Cartographies of Desire: Captivity, Race, and Sex in the Shaping of an American Nation (1999) and numerous essays and articles on writing, gender, pedagogy and her family history. Before her illness, she was working on a collection of essays, a “collage memoir” of her experiences as a military wife and mother during the Vietnam War era. Her colleagues will be holding a memorial and celebration of her life on October 31st.

—Andrea Walsh

interest using the historical case of the French Minitel network. The two presented their work at a CMS colloquium in September which was later released as a podcast. To learn more about Minitel and the book, check out Kevin and Julien’s online museum at minitel.com.

Sam Ford (S.M., CMS, '07) launched his own consultancy, working with clients in the media and civic engagement sectors on storytelling and audience engagement strategies. In addition, he was named a Knight News Innovation Fellow by the Columbia University Tow Center for Digital Journalism, working on a series of projects on moving “From Polarization to Public Sphere.” Sam has also been working with the MIT Open Documentary Lab, the University of Southern California Civic Paths team, and others on a series of initiatives about the Future of Work in Kentucky. This year, Sam has written for publications including Harvard Business Review, Knowledge@Wharton, Nieman Lab, and Columbia Journalism Review. He continues to serve as a research affiliate for CMS/W and teaching in the Department of Communication at Western Kentucky University. He is currently serving as a member of the MIT Graduate Alumni Council. On a personal note, Sam and his partner (and former CMS/W employee) Amanda and their daughters Emma and Harper (now 8 and 6) bought a new home in Bowling Green, Kentucky, which was previously the family home of horror director John Carpenter. They extend an invite to drop in for a visit next Halloween season.

Professor Heather Hendershot spent much of the summer researching segregationist Georgia governor Lester Maddox. This is one piece of a larger project on populism, outsider political candidates, and media manipulation. Hendershot also spent five days in Atlanta observing the congressional replacement campaign and recently wrote a short piece on the Alabama race between moderate Democrat Doug Jones and immoderate, unhinged Republican candidate Judge Roy Moore. She also wrote a piece on a new Reagan documentary for Film International (filmint.nasa/?p=21650); watched three seasons of Fargo, plus The Handmaid’s Tale, Westworld, and Glow (twice); and finally got on Twitter (@ProfHendershot). This fall Hendershot invented two new cocktails, the Tom Petty and the Hendricks Experience.

Zahra Hirji (S.M., Science Writing, '13) joined BuzzFeed News as an energy and climate reporter in June. She had previously worked as a reporter for InsideClimate News.

Brian Jacobson (S.M., CMS, '05) returned to the University of Toronto after spending 2016-2017 at the University of Rochester Humanities Center. Recent publications include articles in the Los Angeles Review of Books (about corporate oil films), The Atlantic (about oil barrels), and Screen (about midcentury French agricultural films).

Lecturer Rodger LeGrand published his fifth collection of poetry, Seeds, this summer. He also had poems appear in Broad Street. An interview regarding his 2016 book, Millions of Ravenous Creatures, was featured on Snowflakes in a Blizzard. In addition, his co-authored research article, “Assessing Writing Constructs: Toward an Expanded View of Inter-Reader Reliability,” was published in the Journal of Writing Analytics. The study contributes to scholarship on the inter-reader reliability and validity of multiple-trait portfolio assessments as well as to recent discussions about reconceptualizing evidence in ePortfolio assessment.

Professor of Science Writing Tom Levenson’s book, Einstein in Berlin, originally published in 2003, was reissued in it’s first electronic edition by Random House. He will be speaking at the first Zuckerman US-Israel Symposium in Tel Aviv on November 7.


Abby McBride (S.M., Science Writing, '12) in New Zealand this year as a Fulbright-
An Investigation of Compulsions

his review of Sharon Begley's Just Can't Stop: The New York Times Book Review published critic for the Undark podcast, and in March, for Immortality." He is the science and media opinion category. This spring he was one of the Harvard Medical School media fellows of Science Writers' "Science in Society" Finalist for the National Association me opioids without counseling" named professor this year, saw his piece "I told my doctors my drug history. Yet they gave me opioids without counseling" named critic for the Undark podcast, and in March, the New York Times Book Review published his review of Sharon Begley's Just Can't Stop: An Investigation of Compulsions.

Professor of Digital Media Nick Montfort presented his computational poetry in readings in Athens, Porto, and Krakow. He also completed The Truelist, the first book in a new series of computer-generated literary work, by a wide range of authors, that he is editing and that will be published by Counterpath Press beginning in December. His digital art, based on his poetic practices with language and computation, was shown this summer at Babycastles in New York and in Boston City Hall. He presented similar work in the more underground context of the demoscene in Somerville and Pittsburgh as well as in Saarbrücken, Germany. He organized a unique demoscene event in January, which began with a concert in New York City, continued on a train, and concluded with screenings of the creative works that were submitted in Montreal. His multi-year Renderings project to translate digital literary art from other languages into English, most of which has been published in a literary magazine and The Electronic Literature Collection, volume 3, is concluding. Finally, MIT Press will publish his short Essential Knowledge series book The Future, which offers ideas for future-making based on concepts from the avant-garde, utopian writing, science fiction, digital media, and design fiction.

Professor Lisa Parks published book called Life in the Age of Drone Warfare co-edited with Caren Kaplan for Duke University Press. Download the introduction at cmswm.it/ parksmartgonewarfare (PDF).

With Hannah Goodwin and Lisa Han, Parks also co-authored "I Have the Government in My Pocket: Social Media Users in Turkey, Transit-Monitor, and Struggles over Internet Freedom." It was published in Communication, Culture & Critique in August.

Sara Rafsky (CMS, '18) was a Google News Lab Fellow this summer at the Witness Media Lab. Her report on the use of drones by activists at Standing Rock will be published by Witness in November.

Justin Reich was appointed Assistant Professor in Comparative Media Studies. He will continue to lead the Teaching Systems Lab in that role. He was also appointed as Faculty Associate of the Berkman-Klein Center for Internet and Society at Harvard University.

Jason Rockwood, (S.M., CMS, '09) based in Miami, is now Chief Information Officer of Oasis, a global leader in full-service short-term home rentals.

Talieh Rohani (S.M., CMS, '09) is still working at Apple as a Senior Product Manager. She is busy envisioning the future of e-commerce and also planning the new product introductions. In Feb, she and her husband welcomed their first child Landon Shahnagian. Landon has started imitating sounds (Dada, Baba, Mama).

Sultan Sharrief (CMS, '19) won a Knight Foundation Grant with the Detroit Knight Arts Challenge. It is $42,000 with a match, for a total of $84,000.

The work is with Sharrief’s youth program in Detroit, “Street Cred”, which empowers youth to tell their stories through new media strategies. When It All Changed is a new interactive, Afro-Futurist 360 video performance piece that uses VR to facilitate conversations about race, class, and police brutality in urban communities. In the year 2072 two sisters, Nia and Eve, can’t get enough people to “unplug” from technology to join their compassion movement. So they find a way to send a memory back to the past that they hope will inspire people to start the compassion movement sooner. The film puts the viewer in the body of a sixteen year old Black girl in Detroit as she tries an ambitious project to bring several sparring groups in her neighborhood together. It’s Eve’s memory of the day when it all changed for her future.

The grant will allow his team to do a community design process working with high school students around Detroit; Sharrief currently plans to use this process as a live case study for his thesis.

Morgan Sherburne (S.M., Science Writing, '10) left her job as a science writer at University of Florida Health in December to join University of Michigan News as a science writer/lead public relations representative in January. Her husband returned from deploy-
ment in March, they bought a house in June, got married in August and will take long naps the rest of the year.

**George Tsiveriotis** (S.M., CMS, ’17) just started a new position as a Research Fellow at the Columbia Journalism School’s Tow Center for Digital Journalism, where he will be researching the role of online influencers in social media spaces. Separately, as a standup comedian (under the name George Civeris), he was recently chosen as one of the 2017 New Faces of Comedy by the Just for Laughs Festival in Montreal.

Professor **William Uricchio** delivered keynotes in Warsaw at Digital Culture and London at the Open City Documentary Festival, and is writing up a white paper on preservation and access of interactive documentary forms, based on an Open Documentary Lab/Centre Phi conference held in Montreal in May.

Over the summer, William’s work was the topic of a three-day series of seminars and workshops at the University of Zurich, and his work on algorithms and VR formed the basis for a seminar at Antwerp University.

The months to come will bring lectures in Amsterdam, Bristol, and Budapest, and the ongoing work of Open Doc Lab, supported by the MacArthur and Ford foundations.

Lecturer **Kim Vaeth** published two poems in the anthology “Still Against the War VII” (Blurb, June 2017) to honor poet Marie Ponsot. In August, she worked with Woods Hole Oceanographic Institute graduate students as a writing advisor aboard the RV Endeavor on a ten-day expedition to study ocean chemistry in the North Atlantic.

Professor of Chinese Media and Cultural Studies **Jing Wang**’s book project *Activism 2.0 and Change Makers in Digital China* is under contract with Harvard University Press.

**Genevieve Wanucha** (S.M., Science Writing, ’09) is working as the science writer for the University of Washington Alzheimer’s Disease Research Center and the Memory and Brain Wellness Center. She designs and edits the UW newsletter *Dimensions*.

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Looking for a copy of a back issue of *In Medias Res*? Or a free laptop sticker? Or CMS/W LED light?

Just write to us at cmsw@mit.edu with your name and address and we’ll send it along.
Parmesh Shahani (S.M., CMS, ’05) was selected as senior TED fellow. He partnered with the UN to launch the global corporate standards of conduct to tackle LGBTI discrimination in Mumbai at their Godrej group headquarters, spoke at “Pride and Prejudice – the Economist Summit in Hong Kong” on LGBT inclusion in corporate India, and gave an opening address at Kashish – India’s leading LGBT film festival.

He also curated “Museum of Memories – Remembering Partition,” a mixed-media pop-up museum featuring 14 art exhibits, including the well of remembrance shown here, and twenty speakers and performers to mark seventy years of the Partition of the Indian subcontinent.
2017 THESIS

COMPARATIVE MEDIA STUDIES

Sue Ding, Re-Enchanting Spaces: Location-based Media, Participatory Documentary, and Augmented Reality. In keeping with an emphasis on new forms of storytelling, Ding proposes a taxonomy for location-based media that distinguishes three different levels of participation and user agency: Consumption, Interaction, and Participation.


Evan Higgins, The Allure of Choice: Agency and Worldbuilding in Branching-Path Transmedia Universes. Agency is often taken as a given in branching-path stories because they, almost by definition, allow for enhanced user involvement. But this truism hasn’t changed as the structure of the worlds that these branching texts exist within have.

Josh Cows, From Trump Tower to the White House, in 140 Characters: The Hyper-Mediated Election of a Paranoid Populist President. Trump’s political communications reached a wider audience, on a sturdier basis, than earlier “paranoid populists”.

Maya Wagoner, Technology Against Technocracy: Toward Design Strategies for Critical Community Technology. This thesis develops an intersectional, critical analysis of the field of practice known as Civic Tech and highlights other relevant community-organizing and activist practices that utilize technology as a central component.

George Tsiveriotis, Everything Is Awful: Snark as Ritualized Social Practice in Online Discourse. Snark can adopt a pro-social role in online environments whose architecture rewards vapid or deceptive content.

Katie Arthur, Frontlines of Crisis, Forefront of Change: Climate Justice as an Intervention into (Neo)colonial Climate Action Narratives and Practices. Radical media strategies, on the streets and on the airwaves, are central to the articulation of climate justice and the contestation of hegemonic meanings of climate action that legitimize colonial violence.

Nathan William Saucier, Operational Images and the Interpretive Turn. So-called deep learning allows for a new development in the operational image - not only are humans excluded but machines are performing inescrutable assessments; they interpret images and provide conclusions while their rationales remain opaque. This sort of image use is difficult to demystify, confront, and confound. To contemplate effective strategies, it helps to look at the broader context of subversion of the logistical image.

Yao Tong, Narrative as an Aid for the Doctor-Patient Relationship in China. The aim of this intervention is to help promote perspective taking, increase awareness, and foster understanding toward medical professionals in China.

SCIENCE WRITING

Giorgia Guglielmi, Media of Mass Destruction: How Fake News is Killing Italy’s Olive Trees. A bacterium is devastating centuries-old olive trees in Salento, Italy. But olive groves have to face a more threatening enemy: fake news. After a vilifying media campaign, a court halted the measures to contain the spread of the disease and accused the scientists who first detected the bacterium as having caused the problem. Left unchecked, the epidemic may spread to the entire Mediterranean basin, with catastrophic economic consequences.

Kate Telma, Senses Lost: The Impossible Dilemma of Usher Syndrome, and its Possible Solutions. With Usher Syndrome, identifying the exact genetic letter isn’t enough to predict how soon someone will lose their sight. How does a person make decisions about an inevitable future when their genetic data doesn’t yet have answers?

Robin Kazmier, The Panataxonomist Revolution: How Rural Costa Ricans Discovered 10,000 New Species. Parataxonomists have been inventorying species for thirty years. Hiring local people, rather than students or academics, as permanent field researchers upset traditional research structures but has paid off for science and local communities.

Bennett McIntosh, SuperAger: Do Octogenarians with Exceptional Memory Hold the Key to Fighting Old Age? That older relative who stays preternaturally sharp long into their 80’s or 90’s may hold within their skull the secret to understanding how we lose, and keep, our memories. Will the craniums of “SuperAger” give science some leverage in the battle against dementia, or even the process of aging itself?

Raleigh McElvery, Trial and Error: Medical Marijuana, the Absence of Evidence, and the Allure of Anecdote. Christy Shake gives her son marijuana extract to ease his epilepsy. Her story highlights the benefits of cannabis, but given antiquated legislation, anecdotes like hers are all we have. As patients gain access to cannabis, neither they nor their physicians understand what they’re receiving from local dispensaries.

Brandon Levy, The Angelman Approach: Hacking DNA to Treat a Rare Disease. Recent advances in medicine are allowing clinicians to treat genetic illnesses by manipulating patients’ DNA, and scientists are now investigating ways to leverage those discoveries.

Greta Friar, Ghost Forests of the Mid-Atlantic: How Sea-Level Rise is Killing Our Coastlines. Up and down the eastern seaboard of the United States, ocean levels are rising at rates higher than just about anywhere in the world. Coastal forests are dying off as a result of the disruptive changes in store for both natural ecosystems and human habitation.

Maria Temming, Melvin Calvin: Nobel-Winning Chemist and SETI Scientist Wannabe. Calvin discovered how plants use carbon dioxide to manufacture carbohydrates. But astrobiology efforts peppered his career, from inspecting moon rocks to attending the first Search for Extraterrestrial Intelligence conference.
FALL 2017 TALKS

Thursdays at 5pm (unless noted)

Sep 7 | 56-114
Playful Practice: Designing the Future of Teacher Learning
The MIT Teaching Systems Lab is developing new forms of teacher practice spaces, technology platforms inspired by games and simulations that provide the opportunity for teachers to rehearse for and reflect on important decisions in teaching. In this participatory session, Justin Reich and the audience will play samples of some of the practice spaces that TSL is developing and discuss the theoretical foundations of its vision for the future of teacher learning.

Sep 14 | 56-114
Engineering Virality: BuzzFeed's Scientific Approach To Creating Content
BuzzFeed's Walter Menendez: “This talk will detail how BuzzFeed thinks about and creates content, highlighting our paradigms for the function and role of our content.”

Sep 21 | 56-114
Platforms in the Public Interest: Lessons from Minitel
Scholars Julien Mailland and Kevin Driscoll (S.M., CMS, ’09) discuss how after thirty years in service, Minitel offers a wealth of data for thinking about internet policy and an alternative model for the internet’s future: a public platform for private innovation.

Sep 28 | 56-114
The Mediated Construction of Reality: from Berger and Luckmann to Norbert Elias
Sociologist Nick Couldry radically rethinks the implications of social constructivism for a work saturated not just with digital media, but with data processes.

Oct 5, 6pm | 26-100 | Communications Forum
An Evening with Sarah Vowell
Thursday, October 5 @ 6:00 pm - 8:00 pm
Overthrown Hawaiian queens, religious zealots, swindlers, cranky cartographers, presidential assassins, and the people who visit their memorials on vacation are all fodder for historian and humorist Sarah Vowell. Her seven books explore America’s not-so-squeaky-clean past and creates a framework for understanding our modern day values. Vowell brings her wit to the MIT Communications Forum to discuss what makes the past so funny.

Oct 12 | 56-114
Ecological Criticism in the Age of the Database
Sean Cubitt asserts the value of anecdotal evidence against the rise of statistics, but at the same time wants to confront the difficulties in bringing about an encounter between readers (human or otherwise) and the mass image constructed by social media and search giants.

Oct 19 | 56-114
Mapping Climate Change: Contested Futures in New York City’s Flood Zone
Liz Koslov explores how certain places come to be seen as “at risk” in anticipation of climate change, and what this way of seeing means for their inhabitants.

Oct 26 | 56-114
Cloud Policy: Anatomy of a Regulatory Crisis
Jennifer Holt examines the legal and cultural crises surrounding the regulation of data in “the cloud.” The laws and policies governing digital data are rife with irresolvable conflicts. The challenges of distributing and protecting data in a policy landscape that is simultaneously local, national, and global have created problems that often defy legal paradigms, national boundaries, and traditional geographies.

Nov 9, 5:30pm | 32 (Stata Center)-123
Brian Michael Bendis: The 2017 Julius Schwartz Lecture
MIT Comparative Media Studies/Writing is thrilled to welcome award-winning comics creator Brian Michael Bendis, a New York Times bestseller and one of the most successful writers working in mainstream comics, for the 2017 Julius Schwartz lecture.

Nov 16 | 56-114
Alumni Panel: Matthew Weise, Karen Schrier Shaenfield, Ainsley Sutherland, and Beyza Boyacioglu
Join us for this year’s alumni panel, when we hear from four alums of the graduate program in Comparative Media Studies as they discuss their experience at MIT and what their careers have looked like in the fields a CMS degree prepared them for.

Nov 30, 6pm | 56-114 | Communications Forum
Has Silicon Valley Lost Its Humanity?
Author Noam Cohen and Northeastern University assistant professor Jeff Howe discuss the rise of Silicon Valley and whether the drive for innovation degrades our humanity.

Dec 7 | 56-114
The Emotional Politics of Piracy, Or Why We Feel Intellectual Property Infringement as National Trauma
Anjali Vat: “The everydayness and banality of piratical trauma fuels desires for intellectual property maximalism and intellectual property criminalization, which reproduce the very conditions which gave rise to the trauma.”

A full schedule, including special events, is available at cmsw.mit.edu/events. Miss an event? Catch up at cmsw.mit.edu/media.
From Taft to Trump: How Conservative Media Activists Won—and Lost—the GOP
cmswm.it/nicole-hemmer
As early as the 1950s, conservative media activists were organizing third-party tickets, promoting presidential candidates, and encouraging their audiences to cast votes based on ideology rather than party. But the centrality of conservative media to presidential politics is not a new development. In this talk, Nicole Hemmer explains how conservative media activists won the GOP for the right—and how in the era of Trump, they lost it.

The Contingencies of Comparison: Rethinking Comparative Media
cmswm.it/larkin-andriopoulos
Brian Larkin and Stefan Andriopoulos point out that we know cinema arrived in Shanghai and Calcutta at the same time as it did in London and evolved in those locations to produce different institutional and aesthetic forms. We also know that currently Seoul is far more “wired” than New York and that Lagos is developing a film industry that is rapidly becoming dominant in all of Africa. Future media centers will emerge in places far outside their traditional Western centers.

The Conservative Canon Before and After Trump
cmswm.it/conservative-canon
Michael J. Lee charts the vital role of canonical post–World War II (1945–1964) books in generating, guiding, and sustaining conservatism as a political force. Conservatives have argued that the movement was a product of print, rather than a march, a protest, or a pivotal moment of persecution. Mid-century texts became influential not only among conservative office-holders, office-seekers, and well-heeled donors but also at dinner tables, school board meetings, and neighborhood reading groups.

The Spiciest Memelord – An Interview with Jeopardy Champ Lilly Chin
cmswm.it/lilly-chin-jeopardy
MIT student and Jeopardy College Tournament champion Lilly Chin showed that the right education, whether the enlightening kind one gets as a CMS student or the self-guided (or self-inflicted) type gotten through years of trawling the darker corners of the internet, can help anyone prepare for their fifteen minutes of uninvited fame: or as she put it, for the surreality of becoming other people’s media object.

An Evening With Aparna Nancherla
cmswm.it/aparna-nancherla
Named one of Variety’s Ten Comics to Watch, Aparna Nancherla has racked up appearances on Conan, Last Comic Standing, Inside Amy Schumer, and The Jim Gaffigan Show. A former writer on Late Night with Seth Meyers and Totally Biased with W. Kamau Bell, Nancherla discussed her career and tackling tough topics with humor.

Barbie and Mortal Kombat 20 Years Later
cmswm.it/barbie-mortal-kombat-20
Yasmin Kafai and Gabriela Richard expand the discussions on gender, race, and sexuality in gaming. This event was co-hosted with MIT Women’s and Gender Studies, part of its Diversifying Barbie and Mortal Kombat panel discussions.

The Networked Sensory Landscape Meets the Future of Documentary
cmswm.it/networked-landscape-documentary
The story experience expanded as media makers incorporate computational “interactive” interfaces into their work. However, the documentary impulse continued to be defined by the primary sensors of the past: motion images and (synchronous) sound. Glorianna Davenport presents DoppelMarsh, data from a dense network of diverse environmental sensors mapped to deliver “a sense of being there”.

The Exit Zero Project: A Transmedia Exploration of Family and Class in Postindustrial Chicago
 cmswm.it/christine-walley
Christine Walley talks about her research into the traumatic effects of the loss of the steel industry in Southeast Chicago and how it found expression in a book, website, and documentary film.

Knowledge’s Allure: Surveillance and Uncertainty
 cmswm.it/sun-ha-hong
Sun-ha Hong on how the present struggles with “big” data and surveillance are not just a question of privacy and security, but how promises of knowledge and its bounty enact a redistribution of authority, credibility and responsibility: it is a question of how individuals become the ingredient for the production of truths and judgments about them by things other than themselves.

“Innovation” and “Engagement” – Experiments with What Industry Buzzwords Can Mean in Practice
 cmswm.it/industry-buzzwords
Alum Sam Ford and Fusion colleague Federico Rodriguez Tarditi discuss what they have learned from their experiments exploring new ways of telling stories, new approaches to building relationships with key publics, new ways of working internally, and new types of roles/positions in the company.

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From Stereopticon to Telephone: The Selling of the President in the Gilded Age
 cmswm.it/charles-musser
Yale University’s Charles Musser says that contrary to our received notions on the newness of new media, the presidential campaigns of the late nineteenth century witnessed an explosion of media forms as advisers and technicians exploited a variety of forms promote their candidates and platforms.
PODCASTS AND VIDEOS

Sexual Harassment and Gender Equity in Science
[link]
Four scientists and journalists, including BuzzFeed News reporter Azeen Ghorayshi, discuss barriers to gender equality in the sciences and steps to overcome them.

Desktop Reveries: Hand, Software, and the Space of Japanese Artist Animation
[link]
Paul Roquet on how the physical and perceptual affordances of interfaces appear reimagined in the textures, movements, and tactility present in the animations. Through a phenomenology of the contemporary desktop, Roquet seeks to ground the contemporary audiovisual imagination in the materiality of the tools and techniques at hand.

Race and Racism in the 2016 Presidential Election
[link]
The 2016 presidential election brought issues of race and racism to the forefront of American politics and forced journalists to confront how to cover these topics without providing a platform for hate groups. Slate chief political correspondent and CBS News political analyst Jamelle Bouie joined MIT Communications Forum director Seth Mnookin to explore how race and ethnicity framed the election and how journalists and content creators can improve coverage of these issues moving forward.

Authoritarian and Democratic Data Science in an Experimenting Society
[link]
Media Lab alum Nathan Matias asks, how will the role of data science in democracy be transformed as software expands the public’s ability to conduct our own experiments at scale? In the 1940s-70s, debates over authoritarian uses of statistics led to new paradigms in social psychology, management theory, and policy evaluation. Today, large-scale social experiments and predictive modeling are reviving these debates. Democratic methods for data science may offer an alternative to this corporate libertarian paternalism.

Exploratory Programming for the Arts and Humanities
[link]
MIT professor Nick Montfort talks about his new book and how learning to explore code isn’t just for the tech-inclined—programming can be a way for arts and humanities scholars to discover answers…and questions…they’ve never seen before.

#Misogynoir, #SolidarityIsForWhiteWomen, and other forms of Black Digital Feminisms”
[link]
MLK visiting scholar Kishonna Gray discusses how marginalized women persevere and resist hegemonic realities operating under the structures of masculinity, heterosexuality, and Whiteness sustained in digital spaces.

Black + Twitter: A Cultural Informatics Approach
[link]
André Brock unpacks Black Twitter use from two perspectives: analysis of the interface and associated practice alongside discourse analysis of Twitter’s utility and audience.

Fall 2016 Alumni Panel, with Andres Lombana-Bermudez, Colleen Kaman, Abe Stein, and Lily Bui
[link]
Hear from four alums of the graduate program in Comparative Media Studies as they discuss their experience at MIT and what their careers have looked like in the fields a CMS degree prepared them for.

An Evening with John Hodgman
[link]
New York Times best-selling author, former Daily Show correspondent, stand-up comic, and podcaster John Hodgman brought his wit to MIT for a discussion on his career and the state of comedy today.

Illuminating 2016: Using Social Listening Tools to Understand the Presidential Campaign
[link]
Syracuse University’s Jennifer Stromer-Galley describes the large scale collection and machine learning techniques she and her team have used for the Illuminating 2016 project to study the ways the presidential candidates and the public have used social media.

The Turn to ‘Tween’: An Age Category and its Cultural Consequences
[link]
How are “tweens” represented in popular culture? And how does this relatively new category deal with race, class, and gender identity?

Time Traveling with James Gleick
[link]
In conversation with Alan Lightman, international best-selling author and science historian James Gleick discusses his career, the state of science journalism, and his newest book Time Travel: A History.

This Land Is Our Land: Mobile Media, Protest, and Debate in Maasai and Mongolian Land Disputes
[link]
How has mobile media changed how nomadic communities share information, engage states, and join international deliberations?

Next Stage Planning for the Digital Humanities at MIT
[link]
Douglas O’Reagan updates the audience on his efforts and invite suggestions and ideas concerning the future of digital humanities at MIT.

Ready for more podcasts and videos? Catch up, or subscribe for just-posted ones, at soundcloud.com/mit-cmsw and cmswm.it/cmsw-youtube.
In July 2016, Lecturer B. D. Colen left his Boston life behind and moved to London, Ontario – to live with a woman he married this past July. But he continues to teach 21W.749 and 21W.778, and so each week he undertakes what he calls The Endless Commute. Leaving London at 7:30 a.m. on train 70 for Toronto, he arrives at 10:10. Then to Billy Bishop airport, for the Porter Air 1:30 to Boston to teach photography from 7 to 10 p.m. Wednesday it’s teach science journalism from 10-1, then Porter’s 3:40 to Toronto, and at 7:30 p.m., train 79 back to London, arriving at 9:45. And over the course of the 38 hours, he photographs – “because that’s what I do,” posting images to Facebook and Instagram under the hashtag #TheEndlessCommute.