

Comparative Media Studies | Writing

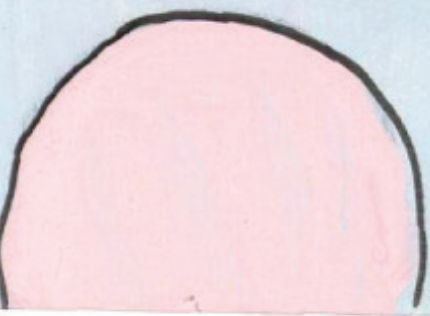
In Medias Res

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Cover image by Jackie Liu, '18, part of "Girl Meets Void," p. 23

By Edward Schiappa, John E. Burchard Professor of Humanities



Welcome to the 2018/19 academic year at Comparative Media Studies/Writing. Let's jump straight to the big news, announced just before this issue went to press, and congratulate Professor Lisa Parks. The MacArthur Foundation unveiled this year's fellowships, unofficially known as the "Genius Grants," and Lisa is a recipient. She is the second CMS/W faculty member to receive a MacArthur Fellowship, after Professor Junot Díaz won one in 2012. As you will see on pages 52 and 53 of this issue, Parks plans to use the \$625,000 grant, distributed over five years, primarily to support her work in her research group, the Global Media Technologies and Cultures Lab.

Additional kudos are due to Associate Professor Sasha Costanza-Chock, whose essay "Design Justice, A.I., and Escape from the Matrix of Domination" was a winner of the inaugural Resisting Reduction Competition run by the MIT Press and our friends at the MIT Media Lab. Their piece, combining insightful technical and ethical analysis with their personal experience of how technology can force transgender people back into gender binaries, is powerful.

Overall the past twelve months have been great ones, as shown in the other pieces that follow. We feature the work of three Comparative Media Studies alumni in this issue, on "wholesome memes," public radio membership, and, well, what it means to be an MIT alum. That last one comes from Candis Callison, '02, who became the first CMS

graduate to deliver the address at the Investiture of Doctoral Hoods. (She also earned her Ph.D. at MIT in 2010, in history, anthropology, and science, technology, and society.)

You might want to know about some major events coming up.

First, we are thrilled to announce the relaunch of the Media in Transition conference, to happen in May 2019. Media in Transition — both the biennial conference and a book series by the same name — served to plant a flag in the ground for an upstart MIT program called Comparative Media Studies. CMS co-founder Henry Jenkins and Literature's David Thorburn worked to bring the program, conference, and series to life, with big contributions from senior lecturer Edward Barrett, and those artifacts together set the tone for how CMS and later CMS/W would think of itself. Together they were transdisciplinary, welcoming to people from all academic backgrounds, and both a celebration of and challenge to traditional approaches to communications and media studies. Perhaps the biggest evidence of that is the conference's free/low-cost registration. It is one of the few major media conferences that takes pains to be financially accessible to master's students and others who do great research but may not yet have the budget that comes with a faculty position or fellowship. But down to business: the call for papers is out (see page 60), with a deadline for paper proposals of February 1, 2019. The theme is "democracy and digital media," appropriate since that mirrors the theme of the very first Media in Transition conference. A lot of changed since then — for one thing, in 1999 "digital media" was still thought of narrowly as "computer culture" — so what better way to take stock than to return to similar questions for the conference's 20th anniversary.

Second, we are also rebooting the Media Spectacle after a brief hiatus. (See page 47.) For years the Media Spectacle has been the event for the MIT community to showcase its short films, animation, and other productions. But CMS/W undergraduate academic administrator Becky Shepardson pointed out that the ways students create and share videos

has changed dramatically since the first Spectacle. Back then, a screening on campus might have been the only way to show off your production. Today, distribution is as easy as an upload. But that didn't solve the problem of findability, acknowledgment, and community: your upload could fade into the static of a million others. So with the help of MIT Student Cable, the Spectacle has been revamped into a video-making hackathon. Last April saw the first of these, a weekend-long blitz of producing two-minute videos on the "IHFTF" theme.

It has been a pleasure to revitalize both of these events, since they were such a wonderful part of our community's early days.

As usual, near the end of this issue you can find all sorts of shorter updates from faculty, staff, and alumni. One we should mention here though is news of a new book just shy of its publication date: Professor T.L. Taylor has written *Watch Me Play: Twitch and the Rise of Game Live Streaming*. It's due out in October from Princeton University Press and "offers a vibrant look at the melding of private play and public entertainment."

Finally, a last big news item that at this early point we can merely tease. Professor Fox Harrell will soon launch a Center for Advanced Virtuality. Its work is something that has long been percolating in our Open Documentary Lab and Harrell's Imagination, Computation, and Expression Lab, but now the time is ripe for something grander. The intent is for the center to support production, studio courses, laboratory research, capacity building, and, as a whole, push this young field forward in a way that brings to bear the humanities' focus on the social and ethical impacts of technologies.

There's so much more to share. You can get caught up with much of it in this issue, but to stay up top of everything to come, be sure to stay in touch through our website (cmsw.mit.edu), where you can also find our social media channels and mailing lists. And remember, nearly all our events are open to the public, so don't be a stranger. Come visit.

Edward Schiappa

WHY WHOLESOME MEMES MIGHT BE OUR BEST HOPE AGAINST THE NAZIS

Chris Peterson, S.M., CMS, '13

bae: come over

me: i can't, i'm studying for my finals

bae: okay, good luck. do your best :)

me:



First published in December 2017 at civic.mit.edu.

In *Tokyo Boogie-Woogie: Japan's Pop Era and Its Discontents*, the historian Hiromu Nagahara describes a Japanese government meeting convened during the second World War. A wartime ban had been placed on American popular music, and so officials were serenaded instead by the popular nationalist songs of the day, including “Over There,” a 1939 tribute to the bravery of Japan’s soldiers — and, unbeknownst to all but a music journalist in attendance, a cover of “Over There,” the 1917 American anthem better known by its opening hook “Johnny, get your gun.”

Nagahara tells this story as a case of and for transnational optimism, evidence that even mortal enemies could share a deep and common cultural connection under conditions of total war. Of course, the same facts can be read in the opposite way: that two nations could cheerfully hum the same tune while violently slaughtering each other.

I’ve been thinking about this story since Jason Koebler at Motherboard published an article earlier this summer revealing that many mainstream memes are made by Nazis. And not just the ones featuring fascist frogs, either: dank memes of all kinds often emerge

from subcultural territory occupied by the alt-right before circulating throughout the wider web. Jason raised the question of whether it is ethical to share memes manufactured under such conditions, as if they were conflict diamonds.

But it also made me wonder: what does the mutual appreciation of these memes say about us? What common aesthetic allows a Nazi and a non-Nazi to appreciate the same dank meme? Should we worry about that kind of cultural connection? And if so, what should we do about it?

This problem is not new but in fact just a different form of an ancient struggle between fascism and democracy. The common aesthetic of these circulating memes is the nihilist irony that developed as a reaction to WWII and today fuels the alt-right while fatiguing the rest of us. Our best cultural weapon against the advances of the alt-right, then, are wholesome memes, which look much like the memes you know, but are rooted in sincerity and compassion rather than nihilism.

As Jason referenced in his article, for decades academics have been arguing whether it is ever okay to cite Martin Heidegger. The basic problem is that Heidegger was a brilliant and influential philosopher and also a Nazi. Some people argue he was so brilliant we can’t ignore



his philosophy; others said no, you shouldn't cite Nazis, because they were Nazis.

The debate was renewed in 2014 with the publication of Heidegger's long-embargoed *Black Notebooks*, which are somehow even more sinister than their title makes them sound. To save you from reading a thousand pages of a Nazi's diary, what the *Notebooks* show is that not only was Heidegger a committed Nazi, but that Nazism was baked into his thought, which means his philosophy must not only be discarded but actively opposed.

But how do you fight one of the philosophy's most brilliant/damaged thinkers on his own turf? In 1953 Jurgen Habermas, perhaps the most influential democratic theorist of the postwar West, argued that Heidegger was too important to be ignored but too dangerous to rely upon. Instead, he proposed that "it appears to be time to think with Heidegger against Heidegger": to take his critical insights and transpose them democratically in order to, as one commentator put it, "to leave space for the citizens themselves to determine and develop their different collective and individual life projects." For the purposes of this essay, we can think of Heidegger as the philosopher of Nazi memes, and Habermas as the philosopher of democratic memes.

And so the time has come to think with memes, against memes: to reappropriate and redesign the meme-form to fight fascism and rebuild democracy.

There are many kinds of memes: dank, spicy, and fresh, just to name a few. But the memes that Jason identified as emerging from the alt-right are often wrapped in layers of irony that insulate the reader from caring about their subject. Who cares about climate change if we're all garbage?

This particular style of nihilism resembles that found in Heidegger's philosophy, specifically his concept of being-toward-death. According to Heidegger, we are thrown into the world, and our uncertain fate makes us feel guilty and anxious. Only the resolute anticipation of our own death can free us by allowing us to see, in our individual absence,

our individuality. Our own death makes possible our own life.

Being-toward-death thus liberates us by alienating us. It reminds us that we are individuals, apart from society, and that when we die, our being ceases. Except here is the thing: being an individual waiting/wanting to die is no way to live together in a society, which is precisely the problem we face broadly, now. We sit and scroll and daydream of the day we will each be dead in the ground, freed of our respective responsibilities. Meanwhile, the alt-right, enthusiastically alienated from/by society and without a single fuck to give, is on the march.

The good news is that there is an antidote to this kind of alienation. The bad news (for lovers of nihilist, ironic memes, anyway) is that it's to be brutally, unironically earnest, to others and with yourselves. It requires a New Sincerity, but for memes: replacing the ethic/aesthetic of postmodern irony with an earnest wholesomeness that, as Habermas hoped, helps us live together rather than apart.

Postmodernism refers to many things, but can be broadly understood as a philosophical and artistic movement, developing especially after the catastrophe of the Second World War, that questions modern concepts of progress and objectivity. In literature and art, this skepticism was performed especially through irony, which projected expertise while protecting authors from being pinned down to truth-claims. In the decades since, postmodernism spread not only across the humanities and arts but the sciences and now everyday life, with government officials offering alternative facts and Facebook struggling to define fake news.

Yet in recent years a new movement has sought to transcend postmodernism by moving beyond irony and rebuilding the world it once sought to split. If this movement has a manifesto, it might be David Foster Wallace's 1993 essay on television and U.S. fiction. The essay, while nominally a review of contemporary sitcoms, is also a commentary on the postmodern aesthetic of nihilist irony: distant and distancing, and terribly isolating. The title of the article itself (E Unibus Pluram, or "out of one, many") describes both how televisual culture operates and the ultimate effect on a nation subjected to it.

Written while he was drafting *Infinite Jest* (which, may I remind you, features a germophobic President tanned an unnatural orange whose television stardom gets him improbably elected despite a



quixotic campaign of building a border wall and launching trash into Canada to Make America Clean Again), Wallace argued that “irony and ridicule are entertaining and effective [and] at the same time they are agents of a great despair and stasis in U.S. culture.”

For Wallace, the nudged ribs, cool smiles, and knowing winks of televisual culture made people laugh, but also made people afraid of being laughed at, and thus simultaneously kept them pacified by entertainment and frozen by fear, afraid of becoming entertainment. This is also why, when people asked Wallace what the massive Infinite Jest was about, he often told them “loneliness.”

Against this debilitating irony, Wallace both predicted and prayed for a new post-postmodernism, one that, rather than daring to be skeptical, would dare to be sincere:

“The next real literary ‘rebels’ in this country might well emerge as some weird bunch of anti-rebels...who have the childish gall actually to endorse and instantiate single-entendre principles. Who treat of plain old untrendy human troubles and emotions in U.S. life with reverence and conviction. Who eschew self-consciousness and hip fatigue. These anti-rebels would be outdated, of course, before they even started. Dead on the page. Too sincere. Clearly repressed. Backward, quaint, naive, anachronistic. Maybe that’ll be the point. Maybe that’s why they’ll be the next real rebels.”

In late 2016, as the entire world was collapsing, a new kind of meme was exploding. Wholesome memes did not originate on Reddit, but they came to be gathered there, aggregated in an eponymous subreddit that called for memes expressing “support, positivity, compassion, understanding, love, affection, and genuine friendship by re-contextualizing classic meme formats, and using them to display warmth and empathy...with no snark or sarcasm.” Such memes are not pre-ironic but post-ironic: they are aware of, and actively remix, the expectations and form of more nihilistic genres in order to express authentic sentiment and acknowledge the human connection between author and viewer.

Wholesome memes are effective because they encode, in a spreadable and durable digital form, the kind of emotional labor that picks

people up and encourages them to go on, even if it’s not clear where they are going or what awaits them. They dare to speak of the ordinary with reverence and conviction. They require vulnerability on the part of both author and viewer, and through that vulnerability build strength. They liberate not by anticipating individual death but by affirming shared life: that, after we pass on, we do not die, but instead live on through the people and institutions that compose the common world we made together.

For these and other reasons wholesome memes are also remarkably Nazi-proof. It’s not only that territories controlled by the alt-right don’t source wholesome memes, it’s that they can’t. Or, at least, they haven’t yet, and I think it’s unlikely they will. The wholesome ethic is egalitarian, antifascist, and resists ironic deployment. Instead, wholesome memes are fundamentally democratic because they build solidarity, indeed are solidarity: in both essence and function artifacts of a democratic consciousness, realized through communicative action, that Habermas has spent his life trying to build after Heidegger and despite postmodernism.

Most of us were raised in a postmodern age, taught first on the schoolyard, and eventually in the schoolhouse, to be cool, distant, safe, and so also passive, weak, complicit. But the challenges we face require a change in our culture, and thus also the media that both bears and transforms it. That change is here in wholesome memes. And it could not have come at a better time.

This change will not be easy.

Living wholesomely is hard. Sincerity has risks. Faith can be tested, and can falter, but mustn’t fail. Particularly in the present, beset by false facts and fascist frogs, but still trying to forge the path ahead, progressing in a dumb determined animal way, simply because we must. Because authentic wholesomeness, not the wholesomeness of a child but of a monk, not inherited but chosen, not given by grace but earned by hard work, can be mocked, or betrayed, but it can never be corrupted. It has the lasting strength of strength surrendered; “no one takes it from me; I lay it down of my own accord.” And in these dark days, it may be the best hope we have. ●

THIS YEAR'S NEW GRADUATE STUDENTS

COMPARATIVE MEDIA STUDIES



Iago Bojczuk is a journalist and researcher focusing on the interplay between new media technologies and cultures of the Global South. Originally from São Paulo, Brazil, Iago earned a Bachelor of Arts in Media Studies from the University of Oregon, where he graduated cum laude and Phi Beta Kappa. His honors thesis

addressed the relations between young Brazilian's use of Internet memes and their engagement with the public discourse during the impeachment of Dilma Rousseff.

With interdisciplinary interests, Iago's experiences span from technology to human rights and from education to youth activism. As an undergraduate student, he served as a delegate during the 3rd UN World Conference on Disaster Risk Reduction in Sendai, Japan. As a youth delegate, he also engaged with various global leadership programs in the United States, Brazil, and Jordan. In 2017, Iago was appointed as an Oxford Consortium Human Rights Fellow and completed a seminar at the University of Oxford.

At MIT, Iago works at the Global Media Technology & Cultures Lab. He is enthusiastic about emerging technologies and their creative appropriation by marginalized groups. He is also the recipient of the prestigious Jorge Paulo Lemann Fellowship, whose goal is to support graduate students dedicated to creating social impact in Brazil. Apart from academia, Iago enjoys spending time exploring new cultures, learning about art, and listening to Brazilian music.



Elizabeth Borneman is a designer, writer, and researcher interested in how art, computation, and communication can combine to strengthen community structures, and enhance learning across learner backgrounds. A Florida native, Elizabeth earned her Bachelor of Science in Neurobiology from Georgetown University.

There she led a research team in the Culture and Emotions Lab investigating the campus climate for patterns in students' belonging and social engagement across university locations and situational contexts. She also spent a semester in Cape Town, South Africa as a field researcher studying plant systems and animals' optimal foraging, ideal free distribution, and territorial defense behaviors.

She most recently worked as a designer and programmer artist in Xaq Pitkow's Computational Neuroscience lab, where she designed and prototyped interactive graphics and games for teaching and communicating concepts in computational neuroscience and in color vision grounded in visual perception. She's excited about the power of info-visualization. At MIT, Elizabeth works in the Teaching Systems Lab designing multi-media practice spaces and curriculum

for equitable teaching in Computer Science and STEM. Outside of study, Elizabeth likes to go dancing, spend time on the water, and explore outdoors.

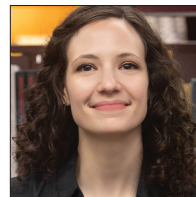


Anna Woorim Chung is a digital media researcher and designer. She explores ways of representing spaces and information through mediums like VR, 360 video, and data visualization.

Born and raised in southeast Michigan, Anna first made her way out west to attend Pomona College, where she studied Media Studies and Computer Science. Along the way, she worked on VR research at the USC Institute for Creative Technologies and published a paper on Computer Science education.

Anna's current projects aim to engage people in understandings of gentrification and civic engagement. At MIT, she joins the Center for Civic Media, where she hopes to continue working on projects and tools that critically examine digital and physical spaces and make them more inclusive.

After school, Anna loves exploring cities, playing basketball, improving her Korean, and napping.



Judy Heflin is a writer, programmer, and researcher focusing on computational narrative intelligence and the literary aspects of new media. She graduated from Yonsei University in South Korea with a B.A. in Comparative Literature and Cultures and a certificate in creative writing. Judy has since created content for media

companies across the globe, ranging from editorial content at various print publications to virtual and augmented reality livestreams at some of the largest competitive gaming events in the world. At MIT, Judy works at the Trope Tank assisting with interactive fiction systems and computational narrative models.



Sam Mendez is a researcher and animated filmmaker. His films focus on cities and experimental documentary techniques; his research focuses on health equity.

Sam wants to use collaborative methods and documentary techniques to improve research partnerships. How do we align people in partnership between universities and community groups? How do we center underserved communities in this work? Sam aims to find answers by working with MIT's Open Doc Lab and public health researchers.

Sam did his undergrad at Harvard, where his thesis was an animated documentary about a bodega. His inspiration came from community-

based participatory research at Harvard's Viswanath Lab. In his time there, Sam worked on public health communication research. After graduation, he focused on video projects. This included a wheelchair travel series he directed in Ho Chi Minh City.

More recently, he worked on public health research at Northwestern's Simon Lab. There, he focused on community engagement for a collaborative U54 grant. He also led the user-centered design process for a web resource about clinical trials.

In his free time, Sam likes to learn more about web accessibility and performance art.

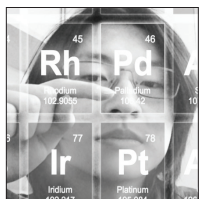


Ben Silverman is an electronic musician, multi-media artist, software developer, and humanities researcher interested in participatory culture, archives, fandom studies, queer online subcultures, and the ethnographic study of virtual worlds. More generally, his research concerns the ways that groups of people organize and behave socially online, and the affective aspects of human-computer interaction.

Before attending MIT, Ben earned a Bachelor of Arts in Music at Brown University with a concentration in computer music. Towards this undergraduate degree, he produced an honors thesis in ethnomusicology regarding fandom and labor in an online music file-sharing community. In addition, Ben received the Buxtehude Premium and Brand Musical Premium departmental awards during his studies at Brown.

At MIT, Ben works with the HyperStudio Laboratory for Digital Humanities. He is interested in the ways in which software and interfaces can be leveraged within the context of multimedia archives, pedagogy, and humanities research.

In his free time, Ben enjoys composing music, making videos, cooking with his partner, drawing, and watching cute animal videos.

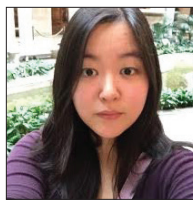


Han Su is an interactive media artist, full stack developer, and media researcher focusing on HCI, politics of code, and technology at large.

Prior to CMS, Han earned his bachelor's degree with double-major in Computer Science and Interactive Media Arts at New York University Shanghai — the third degree-granting campus in the NYU global network, during which he has studied in New York, Abu Dhabi, and Buenos Aires — where he picked up some basic Spanish and Arabic.

Han is born and raised in China and has received education in both Chinese and western countries. Han loves reading about politics, economics, and history. At MIT, he works at the Global Media Technology & Cultures Lab. Han is enthusiastic about emerging technologies and interested in tech companies in emerging markets.

Apart from academia, Han is keen on sports and music — he has received endorsements for his ping-pong and basketball skills, while bad reviews of his singing.



Annie Wang is a researcher and designer fascinated by intercultural exchange, game design, and the power of new media technologies in disrupting and reshaping social science and STEM education inside and outside of the classroom. Originally from Alpharetta, Georgia, she graduated from Wellesley College with a degree in both Media Arts and Sciences (2D Design plus Computer Science) and History. Before joining the CMS program, she was cross-registered and later worked at the MIT Education Arcade and the Game Lab, where she worked to help design both touchscreen and virtual reality-based games for student learning. As a graduate student at MIT, she hopes to further her understanding of the power of media in shaping beliefs and preconceptions and the potential of emerging media in helping both student and adult learners traverse and bridge sociocultural divides. Outside of academia, she can usually be found researching and testing new recipes, getting hopelessly lost in history museums, collecting pictures of dogs and seals, or debating the intricacies of video game lore.

SCIENCE WRITING



After countless hours indulging in science podcasts while toiling away at his own experiments at the U.S. Food and Drug Administration, **Diego Arenas** cannot believe it took him so long to realize he wanted to take part in creating the types of programs that he so often relished. Conducting research confirmed the passion for science Diego nurtured as a Cell and Molecular Biology major at Cornell University, but it was the wait time between experimental steps that led to the biggest personal breakthroughs. In the quiet sanctuary behind the sterile walls of the laboratory, Diego found he was most excited about learning science and devising creative ways to share what he learned with a variety of audiences.

As a first-generation immigrant from Colombia, Diego understands the importance of spreading information for the progress of societies and the individuals they comprise. He has started sharpening his abilities as a science communicator through his work at the American Institutes for Research by developing assessment items that align to the Next Generation of Science Standards. He looks forward to honing his skills at MIT and exploring different forms of multimedia to find his niche within the field.

In his spare time, Diego is either bingeing the latest television series, crafting a new project, or running to his current music obsession.



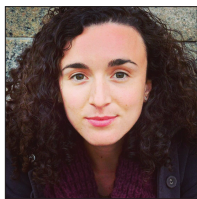
Brittany Flaherty is a Boston-based science writer and “just-for-fun” blogger who grew up exploring the wooded trails and apple orchards of Harvard, MA. When she recently asked her parents about her career ambitions as a kid, Brittany was told, “You just liked nature and reading.” Not much has changed: from aspiring

“nature reader” to budding science writer, Brittany has long loved to explore her surroundings and the power of communication. Delighted to learn that she didn’t have to choose just one of her passions, Brittany studied biology, environmental studies, and English at William Smith College. She began to ardently write about her scientific interests at the nexus of medicine, health, and the environment. After graduation, she moved to Vancouver and conducted Fulbright research that examined emerging challenges for the United States and Canada in managing their transboundary water. Brittany then returned to Boston and has written about cancer biology and research for Dana-Farber Cancer Institute since 2012. Brittany is thrilled to join the Graduate Program in Science Writing at MIT, where she hopes to learn more about how best to connect society with science. An avid runner, skier, and yogi, Brittany writes about language and movement on yogawordnerd.com.



Eva Frederick spent the long afternoons of her childhood in Sheffield, England, collecting snails from under the rocks at the bottom of her garden. The oldest daughter of an archaeologist and a writer, Eva was raised to value both science and storytelling, and often combined the two. Under her guidance, the snails’ everyday lives became thrilling exploits which she often related to friends, family, or anyone who would listen. These first experiences sparked her interest in communicating her enthusiasm about science and the natural world.

Though still an avid snail fan, Eva’s interests have broadened considerably since her rainy English childhood. Eva went on to major in journalism and biology at the University of Texas at Austin, where she made a brief foray into research, studying bacteria living in honeybees’ guts. Her junior year, she began working at UT’s school newspaper, *The Daily Texan*, and co-founded the Science and Technology section, later serving as managing editor. Since then, Eva has interned with *Texas Parks & Wildlife Magazine*, where she crafted stories about Texas animals and ghost towns, and also with the Lady Bird Johnson Wildflower Center, where she taught kids about bugs, birds, and native plants. In her free time, Eva enjoys hiking, making plant-themed cupcakes, and growing tomato plants in her hydroponic garden. Eva hopes to use her career to make science more accessible to the public and increase scientific literacy. During her year at MIT, Eva is looking forward to increasing her understanding of science-based policy and learning to make podcasts. You can follow her on Twitter @EvaCharlesAnna.



Devi Lockwood comes to science writing from poetry, folklore, and long-distance cycling. For the last four years she has been traveling in sixteen countries (about half of that by bicycle) on a mission to record 1,001 audio stories about water and climate change. To date she has collected 750+ interviews, and is working to

create a map on a website where you can click on a point and listen to a story from that place. Devi will be launching a podcast (along with

artistic/environmental education collaborations) in coming months. You can read her writing in *The New York Times*, *The Guardian*, *Slate*, and elsewhere.

Devi is a 2018 National Geographic Explorer for a project recording stories with ArtCirq, an indigenous Arctic Circus in Igloolik, Nunavut, Canada. In May 2014 she graduated Phi Beta Kappa, summa cum laude from Harvard University where she studied Folklore and Mythology, earned a Language Citation in Arabic, and rowed for the Radcliffe Varsity Lightweight Women’s Rowing team. She loves interviewing scientists and non-scientists, and the many doors a good question can open. You can follow her on Twitter @devi_lockwood.



Emily Makowski is a scientist-turned-science-writer from Buffalo, New York. She double-majored in psychology and evolutionary biology at Case Western Reserve University in Cleveland, Ohio, where she did research on how moths smell things with their antennae. Emily started out as a biology major, but switched to

evolutionary biology after a particularly harrowing organic chemistry class. Her new major gave her the chance to take many lab classes on animal behavior, her favorite subdiscipline of biology. In these classes, she studied museum specimens, went electrofishing, overturned rocks to count salamanders, and observed lions and cheetahs at the zoo in winter (where she wore three sweaters at once and learned that big cats sleep a lot). Emily is fascinated by scientific discoveries, but she has always loved writing most of all; in fact, her favorite part of lab work was writing lab reports. Toward the end of college, she realized that she was more interested in writing about research than actually doing research. After earning her bachelor’s degrees in 2016, she worked in ophthalmology labs at Cleveland Clinic and the Louis Stokes Cleveland VA Medical Center — which sparked an interest in writing about health and medicine — and freelanced on the side. Now, at MIT, she is preparing to become a full-time science writer. She is on Twitter @EmilyRMakowski.

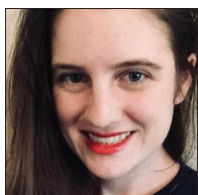


Emily Pontecorvo is a film and radio producer from the tri-state area. She grew up spending summers in the Catskill Mountains at a YMCA camp with compost toilets and a model forest, where she developed a deep-seated passion for the natural world. She attended Wesleyan University for undergrad, where she jumped around

among a series of obsessions with film, social theory, urban planning, sustainability, and other things. After working through her crippling desire to be in nearly every department, she settled into the film studies major. After graduation, Emily embarked on an exciting career in the independent film industry. She had the privilege of traveling all over the United States, working on movies with esteemed directors, but she eventually saw that it wasn’t the right path for her. She still wanted to tell stories, and discovered the thrill of being a journalist.

Emily has an insatiable thirst for knowledge, and a tremendous reverence for and fascination with those on the frontier of learning:

scientists. As she continues her science writing career at MIT, she looks forward to reporting on materials science and the renewable energy market, the tensions around public land and wildlife management, and the great mysteries of the ocean and the ways we are changing it. These days she loves telling stories through sound, and feels there's no equivalent to hearing a good piece of tape.



Madeleine Turner grew up in Los Angeles County, where every day feels like summer. Swapping the SoCal heat for shade under redwood trees, she attended the University of California, Santa Cruz. Through her college years, she spent many hours organizing student-led classes, picking strawberries for an agroecology lab, and learning to hula-hoop (a quintessential Santa Cruz activity).

She always identified as an enthusiastic reader, but didn't discover a love for writing until taking a science communications class in her junior year. After graduating with a degree in ecology and evolutionary biology, she became a social media intern for Sempervirens Fund, a nonprofit focused on protecting redwood forests in the Santa Cruz Mountains. Today she contributes to *Los Gatos Magazine*, a local events and lifestyle publication, and Save the Redwoods League's Giant Thoughts blog, where she writes about redwood science and wildlife. She is thrilled to be part of the MIT Science Writing class of 2019, and looks forward to honing her journalistic skills and expanding the scope of her work.



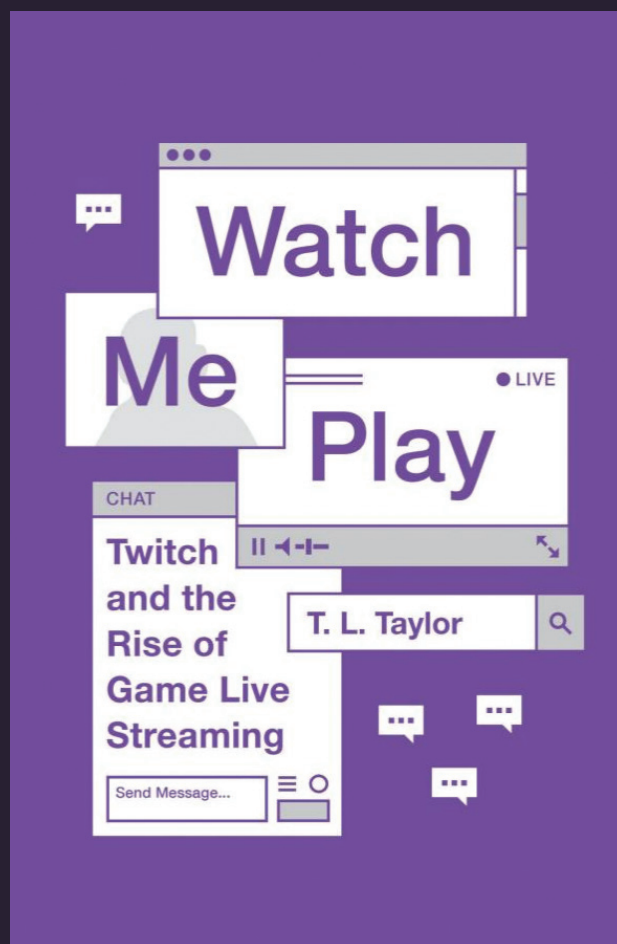
Gina Vitale grew up in Pennsylvania in a town called Phoenixville, where every year a magnificent wooden bird was built, burned, and built again. It was in that town that her high school chemistry teachers graciously allowed her to stay after school to prepare lab materials and type away at her rather unsophisticated novels. After

high school she attended Drexel University, where she quickly failed to choose a singular career path – majoring in chemistry, minoring in psychology, pursuing a certification in creative writing/publishing and serving as editor-in-chief for *The Triangle*. For *The Triangle* she had the chance to write about gravitational waves, sterile neutrinos, nanodiamonds in batteries, and various other amazing things that she never imagined could exist.

Through her various endeavors as a bench chemist, a student journalist, and a generally curious person, she has realized the need for science to be communicated to the public with the fascination it deserves, minus the elitism and the words that nobody can pronounce. At MIT she hopes to learn more about podcasting, longform writing and anything else that will help her throw sturdy ropes across that communication divide. Ultimately, she aims to become the kind of science writer who can instill the feeling of wonder in others that she first felt in the town that lived to be reborn.

In her free time, Gina is either mumbling the Philadelphia Eagles fight song, soapboxing about the importance of print media, or re-watching the X-Files. ●

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BUILDING DARK PATTERNS INTO PLATFORMS

HOW GAMERGATE PERTURBED TWITTER'S USER EXPERIENCE

Michael Trice and Liza Potts

This piece originally appeared in Present Tense: A Journal of Rhetoric in Society, Issue 3, Volume 6.

In this article, we examine how GamerGate trapped both its unwilling targets and willing participants in an unending cycle of rhetorical invention through a mechanism of aggressive, hostile, mob-like activism (Ames 48; Massanari 334; Mortensen 4-5). Influential elements within GamerGate, we argue, specifically subverted the functionality of Twitter as a corporate media platform in order to test a variety of loosely connected arguments to see what would resonate within whatever aggrieved audience the GamerGate collective could find. We have selected GamerGate specifically due to the manner in which the activists subverted the use of Twitter, GitHub, and other online services. In fact, we argue that GamerGate subverted media platforms like Twitter, GitHub, Reddit, and others to become components within an activist supraplatform, a system of interconnected platforms where the higher level platform reshapes the rhetorical purpose and context of the component parts. It is the higher level abstraction of GamerGate as activist supraplatform across multiple media platforms that this article will focus upon.

GamerGate employed tactics that were aggressive and offensive enough to be banned from controversial online forums. However, their removal from these spaces did little to stop GamerGate. Twitter did not ban the group, and this space offers a means to evaluate how the aggressive tactics manifested within GamerGate as an activist supraplatform compromised Twitter as a media platform — turning Twitter into a testbed of inventio for a range of argumentation. Their argumentation was directed at a trapped, targeted audience and designed to gather attention and amplify whatever arguments gathered the most attention for a growing anonymous mob. By examining GamerGate tweets and looking at in-group documentation, this article explains how activist supraplatforms, like GamerGate, can use the functional contradictions within media platforms to subvert the user experience within these sites. For the purpose of this article, we refer to participatory media sites as media platforms, including social media, messageboards, and other collaborative spaces.

GamerGate's anarchic governance and contorted origins offers a compelling case study in online rhetorical invention. GamerGate itself began as a group of 4chan members spreading gossip about game designer Zoë Quinn that had been posted by an ex-partner. Dramatic and unsupported accusations of infidelity and sex for favorable game coverage spread across internet fora. While the initial group spreading the innuendo used numerous hashtags on Twitter, it was not until a celebrity amplifier — actor Adam Baldwin — retweeted a YouTube

video about Quinn with the hashtag #GamerGate that the movement truly took off. Baldwin's tweet not only reached his enormous Twitter follower base, but spawned news coverage about the actor becoming involved in the rumors about Quinn. Over the next month, a cycle of myriad accusations against various women, such as Quinn and Anita Sarkessian, would be followed by celebrity amplification from Baldwin to conservative author Christina Hoff Sommers to alt-right media personality Milo Yiannopoulos.

Each event would become its own happening, serving to fuel the cycle of news-promotion-discussion again and again without any move toward resolution nor any expression of achievable goals or end game.

Over time, this cycle of accusation and amplification (Figure 1) would result in a noisy hashtag where dozens of targets and claims of purpose existed: anti-feminism, media criticism, personal vendetta, and opposition to any number of progressive policies and beliefs that might feed the accusation-amplification model. In this way, GamerGate existed in a perpetual state of invention, spinning off argument after argument with no interest in selecting a consensus cause other than maintaining its amplified, aggressive, combative, and noisy existence.

In this article, we present a framework to evaluate how activist supraplatforms, like GamerGate, interact with corporate social media platforms, like Twitter. We do this to examine how these activist supraplatforms can subvert media platforms and to examine how such subversions affect user experience within both the activist and media platform. We outline this subversion as a form of dark pattern, a term known in the software industry to describe design patterns that serve to trick users into performing certain tasks, often to their own detriment.

In doing so, we offer a new means to evaluate rhetorical invention in both types of platforms as they disrupt or support these digital spaces, providing new methods for software designers and policy makers to address these issues and academic researchers to continue this scholarship.

POLITICS AND PLATFORMS

Scholars have long warned of the innovative dangers associated with dominant social platforms like Facebook, YouTube, and Twitter. Jonathan Zittrain (124-5) highlights the possibility that over reliance on dominant APIs controlled by corporations, who can change or pull them at any time, would restrict and limit the generative nature of the Internet. Stephen Coleman and Jay Blumler (170) likewise warn that

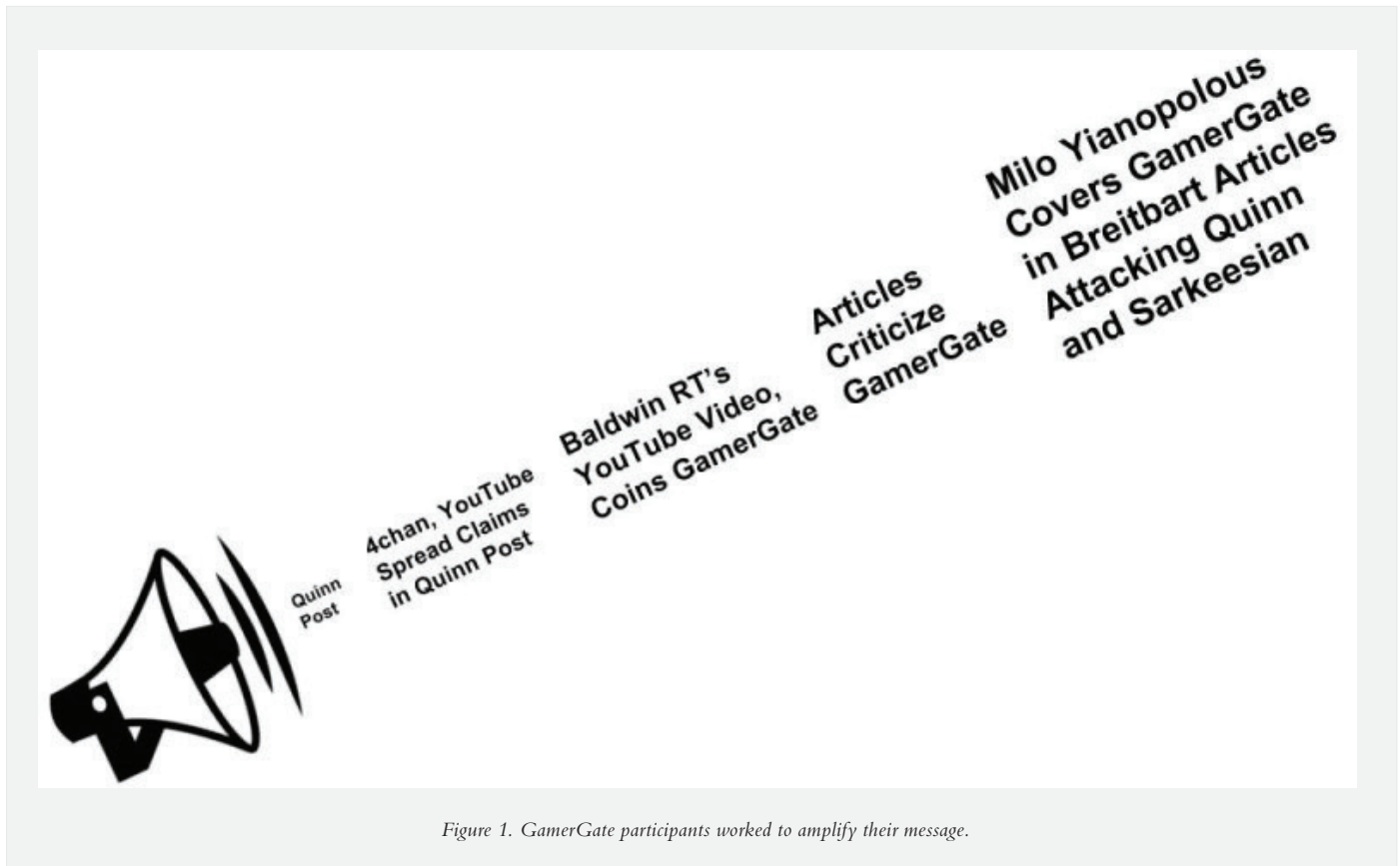


Figure 1. GamerGate participants worked to amplify their message.

current digital platforms lacked a required governmental responsiveness to public deliberation needed for healthy political engagement. Tarleton Gillespie (358) provides a rhetorical frame to criticize the closing of innovation outside of large corporate platforms by delving into the way these structures consumed the very (and varied) meaning of “platform” with the word’s intended and applied uses to claim traits like egalitarian and public for these corporate spaces. Twitter itself became a mix of media platform and political platform by tying its operational purpose to the Arab Spring and other political events, conflating its space as a microblogging hangout with that of real-world activism. In February of 2017, Twitter’s CEO, Jack Dorsey, made this conflation explicit when discussing the U.S. 2016 election: “A lot of the same patterns we’ve seen during the Iranian Green Revolution and the Arab Spring. It was stunning to see how Twitter was being used to have a conversation about the government, with the government” (Roberts). The idealized view Twitter’s CEO held of its media platform would leave unsuspecting users just as open to Russian manipulation in 2016 as it did other users to GamerGate’s manipulation in 2014.

Twitter enables this confusion with the juxtaposition of verified celebrity and journalist user accounts with a much larger anonymous public, one that would create dramatic tension between the two classes of users during GamerGate’s height. Whereas in previous cases, verified accounts had allowed anonymous sources to approach trusted agents, now it ensured that anonymous users had confirmed media

and celebrity targets. Suddenly the functionality that allowed some to speak truth to power in the Arab Spring, and later #BlackLivesMatter, would subject little known gaming journalists to the prolific anger of thousands of aggrieved and loosely organized user accounts.

In fact, many users have demonstrated a clear ability to apply Richard Lanham’s (22) concept of oscillation to move back and forth between the content “fluff” of a single message and computational “stuff” of a powerful network of thousands of participants creating and echoing an array of content at selected targets. This rhetorical manipulation of computational context has been shown to create different experiences depending on participant usage (341). In a similar vein, Zeynep Tufekci (850) outlines how “microcelebrity” within platforms opened new avenues for activism. Microcelebrity, the ability of a noninstitutional activist to build an online following around a particular issue as a nexus node within (and across) a platform, highlights how users have begun to build activist supraplatforms within corporate media platforms through sophisticated understanding that allows a manipulation of network and computational functionality to achieve a specific messaging goal. Namely, it allows a highly visible node, like a microcelebrity, to serve as an organizational tool for the activist supraplatform by providing a means to create an event through focused targeting.

What GamerGate discovered is that an activist supraplatform can create an unwilling microcelebrity with similar organizing effect, such as Quinn.

DARK PATTERNS OF ACTIVISM

When a group attempts to attach an activist supraplatform to a media platform, a key ethical question arises in how the choice of participation is articulated within the user experience. The nature of this choice comes in two parts: 1) is the user experience forced or optional, and 2) do those who choose to engage understand the nature of the new user experience for themselves and others?

In the case of GamerGate the answer to the first question is simple but multifold. Many people chose to join the GamerGate activist supraplatform while highly significant numbers of people were forced targets of interaction. In 2014, thousands of people joined together on Twitter (and other media platforms) purportedly to express anger about numerous issues related to game critics and journalists. The supraplatform raised by these individuals, however, frequently targeted individuals in deeply personal and aggressive ways (Massanari 334) on Twitter rather than abiding by professional criticism of journalists and publishers. Many of the largest targets were women and they were frequently targeted for gendered reasons: sexuality, appearance, and legitimacy of expertise.

We know many chose to join the GamerGate network based upon our own findings of community-building tweets within our sample, as well as larger sampled studies using machine reading techniques (Chatzakou, et al.). Yet, many were forced to join the network. For example, many public feminists, journalists, and other Twitter users found themselves the unsuspecting targets of GamerGate's mob-like platform (Massanari 330). These targeted participants of Twitter as a media platform had no choice about their interaction within the GamerGate activist supraplatform — other than to leave the many media platforms brought under the activist supraplatform's umbrella. This inability to escape the GamerGate campaign was not least because Twitter was slow to address the disparate needs of activist users, journalist users, and casual users. It had conflated its role as a media platform with that of an political activism, leaving the public and verified journalists on the platform at a distinct disadvantage in trying to protect their reputations from mobs of anonymous accounts facing little to no consequence for their behavior.

Likely, most who participated in GamerGate felt they understood the nature of the experience. However, GamerGate as a platform was designed for a specific type of experience and it is worth examining if GamerGate employed ethical principles in relation to all involved. Returning to Lanham, we might ask if GamerGate suggested a design that allowed participants to see the rhetorical structure of the network as well as the message of the system. Or do we view some in GamerGate as we view hyperpartisan Twitter participants sharing Russian propaganda? Clearly aware of their own personal goals, but unaware of the manipulation of the media platform's functionality for an alternative purpose. One way to review whether users were informed is to look for the possibility of dark patterns in GamerGate's activist supraplatform.

Dark patterns are defined as a user experience crafted to trick the user into performing actions not in the user's own interest (Brignull). Experts have looked at dark patterns in relationship to user interface

Do we view some in GamerGate as we view hyperpartisan Twitter participants sharing Russian propaganda? Clearly aware of their own personal goals, but unaware of the manipulation of the media platform's functionality for an alternative purpose. One way to review whether users were informed is to look for the possibility of dark patterns in GamerGate's activist supraplatform.

(Brignull), physical proximity (Greenberg et al. 2), and social capital (Lewis 119). Among the many types of social and system interface dark patterns, three are of particular interest to us from Brignull and Grenberg: A) Bait and Switch: the promise of one experience that provides another; B) Captive Audience: the user enters a system expecting one type of platform (Twitter) and becomes subjugated to another (GamerGate); and C) Misdirection: the participant is encouraged to focused on one action to hide the existence of another less preferable activity.

Thus to see if the GamerGate platform utilized dark patterns to restrict its participants understanding of their user experience, we must look for areas where the GamerGate activist supraplatform restricted users from understanding elements of the broader Twitter media platform. Additionally, we must consider where the design put GamerGate's best interest ahead of the participants.

ILLUSTRATING A PATH OF RHETORICAL INVENTION BY DISRUPTING TWITTER

To understand how activism is motivated in the context of GamerGate, it is important to see the activist supraplatform as one designed beyond the wall gardens of a single site (Potts 23). Rather than relying on any one application, GamerGate uses Twitter, Reddit, 4/8chan, YouTube and a host of auxiliary tools for specific functionality and to achieve specific purposes, from instructive (Trice 2) to broadcasting (Burgess and Matamoros-Fernández 80). Additionally, the sense of community around the activism works both within and beyond the site itself (Mortensen 11).

What unites this process is a system of knowledge bases and social rules across GamerGate aimed at their participants. These rules are frequently replicated across media appearing in forums, Reddit, and archiving systems like GitGud, a GitHub clone using GitLab.

As shown in Figure 2, one reason GamerGate provides such a rich area of study for communication scholars is the detailed level of instructional material provided. Here we have a concise example for



Steps 2-5 assume anonymity and focus upon protecting it

1. If you already have a Twitter account that you intend to use, go to step 8. Otherwise, keep reading.
2. Make a [cock.li/Gmail](mailto:cock.li@gmail.com) throwaway email address if you don't want your new Twitter account to be linked to your main email address.
3. Create your new Twitter account, using your new email address if appropriate. Also make sure to choose a Twitter username not associated with any of your other accounts, to reduce doxxing risks.
4. Choose a self-representative account name and write a self-representative description for your account, but make sure not to give away details that can get you doxxed.
5. Choose a profile picture/photo and a cover picture/photo not associated with any of your other accounts, to reduce doxxing risks.
6. Make a testing tweet.
7. Make a few tweets proclaiming your newness.

Steps 8-11 ensure in-group affiliation and community building

8. Make a few tweets about [#GamerGate](#), spread the links in [this file](#) and [this one](#).
9. (If you are not a white cis-scum male) make a few tweets about [#NotYourShield](#).
10. Increase your visibility by following people: Search the [#GamerGate](#) tag and follow people you like. Remember, you're legit new, so at least some should follow you back.
11. FOLLOW THE PEOPLE WHO ARE FOLLOWING THESE PEOPLE. Chances are some of these are your fellow anons, so with luck we can increase our follow counts.

Broad messaging instructions that give terms of engagement for aligned verified accounts but not opposed verified accounts

12. Search the hashtag,  favorite and  retweet [#GamerGate](#)-supporting tweets. Get your fellow anons to the top.
13. If you get stuck with zero followers, reply to someone, chime in that you agree with them. But don't argue on this step. Let them do that if they want to do that.

Positions a clear, antagonistic "other", the SJW.

If you are confronted, remain calm, don't lose your spaghetti, and be the better person. Explain that this is not about females being victimized, it is about the vilification of gamers and journalistic integrity in the media.

Tweet worthwhile content to prominent supporters of our cause (like [@AdamBaldwin](#), [@Nero](#), and [@CHSommers](#)) for signal boosting. But be considerate of their time and attention, and therefore selective about what you tweet to them.

If you become aware of a spammob attack against you (lots of SJWs flagging you for spam to get your account auto-suspended), one effective defense is to change your Twitter username. You can do this from within Twitter settings. All your contacts and past tweets will be maintained, but non-contacts will get an error message when they bring up your previous Twitter username, and will think they've won. Let them. You'll live to fight another day.

By the same token, don't assume that a SJW has been suspended or has deleted their account just because their Twitter username produces an error message. They might be pulling the same trick.

Use sites like [Archive.today](#) and [Tweet Save](#) to save harassment or bullying in case people take it down and you need proof of their actions

Figure 2. GitGud Twitter Instructions for GamerGate activists.

The use of dark patterns in GamerGate drove its success. For its targets, GamerGate took advantage of its numbers to turn the Twitter experience into an inescapable GamerGate experience.

GamerGate's activist supraplatform for Twitter explained to its new users. Note the importance of anonymity in the instruction, with lines 2-5 dealing almost entirely with the prevention of doxing¹ and education about the possible harms of doxing. Compare this advice to the second paragraph under the instructions where key, public microcelebrities friendly to GamerGate are identified as vehicles for spreading important content. Also note that instructions 8-11 deal with how to be seen and heard within the community at largely the technical platform level: Follow GamerGate accounts, retweet those accounts, and tweet about GamerGate topics. Here we see intentional instructional design to not simply create a Twitter account, but to create a GamerGate Twitter account. Anyone following these instructions is signing up for a very specific and customized GamerGate Twitter experience versus the typical Twitter user.

Moreover, within GitGud, GamerGate also has the supraplatform's view of goals and outcomes clearly stated:

Our goal is simple: game devs should feel free to make what they like, no matter who finds it offensive or what stories they decide to tell, and we

should feel free to purchase their work, or NOT purchase their work, based on whether we think it's worthwhile, or according to OUR individual senses of what is or is not offensive or artistic. The gaming media should only serve as a method of helping to inform that decision, NOT shape it according to someone else's politics, or determine what is or is not "acceptable" for release. Until these conditions are realized, and until there is a CLEAR, UNCONDITIONAL, AND IRREVERSIBLE admission of wrongdoing on the part of our opposition, negotiation is pointless. If there's no admission of error, it's exactly like a corporation paying off a litigant without admitting wrongdoing and then continuing their objectionable behaviour: nothing will change. There must be a recognition on the part of our opposition (or at least the community at large) that our opposition is in the wrong. Period.

Within this goal statement rests the core need for constant invention on the part of GamerGate. The purpose is not some set policy outcome or achievable condition, but rather the unconditional defeat and apology from an ever-growing list of enemies for behavior that is almost omnipotent as described above. The combination of anonymity attached to goals framed as unending war ensure a system that moves from argumentation and achievable goals to endless rants and harassment for all involved.

A CLOSER LOOK AT GAMERGATE AS DARK PATTERN

After examining the instructional framework behind GamerGate's Twitter activity, we looked at 100 tweets from November of 2014 to determine what type of activities we might categorize within the tweets. Our goal was not to create the definitive list of categories,

but simply to examine a selection of activities performed within the hashtag.

In general, we noted three main activities (see table): instructional/operational (21 tweets), critical (38), and community building (22). We also noted some lesser categories of appealing to microcelebrities (9) and spreading news (6). However, we opted to focus on the larger three categories due to their clear dominance in our sample.

Category of Tweet	Tweets	Definition
Instructional/Operational	21	Discussion of tactics or functional elements, link including links in tweets.
Critical	38	Criticism of a group or individual.
Community Building	22	Social interactions, creative gestures, and morale boosting.

These three distinct types of activity largely involved:

1. Providing strategic operational instruction that served to close stasis of definition, describe tactical information, and establish a history of the GamerGate movement.
2. Criticizing some group, typically referred to as feminists, social justice warriors,³ journalists/media, or some specific agent.
3. Building an internal community narrative through cultural artifacts and morale boosts.

In our sample, the most criticized topic was GamerGate itself. So while many targets of GamerGate were forced into interaction, many critical of GamerGate opted to engage by choice. Secondly, those in GamerGate were critical of a wider variety of topics, not focused on a single issue. GamerGate directed its criticism at groups it named as specific individuals, critics of GamerGate, and the media. This split focus within the hashtag points toward how misdirection and captured audience appeals worked to complicate any stasis of definition within the hashtag, maintaining an extended period of invention. Essentially, GamerGate offered a noise machine pointed at a number of named but under-defined target groups. Members of GamerGate with any grievance for one were encouraged to support its grievance against all, no matter how poorly defined a target group might be.

Operationally, the platform engaged in a robust discussion of tactics and history. These tweets leave little doubt that GamerGate saw itself

as a platform built for active engagement with some other. Additionally, community building was robust and diverse in nature, including creation of artifacts like music videos, and memes without tactical value beyond community building. GamerGate’s use of operational and community-building tweets reflect a platform with a clear us (GamerGate) versus them (feminists, critics, the media) nature.

In all, our sample of GamerGate tweets echoed the GitGud Twitter instructions closely. It was mostly critical in nature, though unfocused on a single position or topic. Yet it also demonstrated a tightly connected community concerned with keeping spirits high and interacting with others in the hashtag. In fact, the tonal binary of in-group versus out-group from the Twitter instructions was the most consistent element of our sample. This, too, suggested a specific dark pattern within the GamerGate platform: instituting an us-versus-them environment from the outset. The targets of GamerGate quickly become a captive audience in GamerGate’s activist supraplatform with little choice to exit the GamerGate experience short of leaving Twitter. The hostility also created a bait and switch scenario for any in GamerGate who expected productive activism and engagement as the complete lack of consensus making tools within GamerGate kept the activism within a perpetual stage of invention, constantly churning loosely related arguments with no capacity for resolution. Perhaps one of the most important dark patterns within GamerGate then became how the platform was created for chaos and disinformation while claiming to its members that it could somehow create productive change.

THE GIVE AND TAKE OF RHETORICAL INVENTION IN PUBLIC PLATFORMS

In the end, GamerGate activism resembles a churn of constant invention, moving from one celebrity to another, whether as friend or foe (Figure 1). Rather than possessing a single, authoritative argument, GamerGate welcomed whatever argument caught fire (criticism of Quinn, feminists, SJWs, games journalists, or each other). This activism platform neglected a means toward finding consensus of outcome in favor of expanding its volume of tweets and RTs while promoting anonymity amongst its participants. Importantly, this defense of anonymity was promoted with fear appeals of doxing juxtaposed against GamerGate’s willingness to target verified accounts and centralize around friendly celebrities.

The use of dark patterns in GamerGate drove its success. For its targets, GamerGate took advantage of its numbers to turn the Twitter experience into an inescapable GamerGate experience. When one member sent a message, that message became a signal to highly connected community that had been instructed to echo one another and to target a wide, loosely defined array of others. For its members, it sold fear and anonymity as identity, lessening any opportunity for legitimacy or accountability because it denied any attempt at establishing goals and removed the possibility of personal identity to offer personal accountability. This inability for GamerGate to oscillate between what was effective signal boosting and what was effective argumentation generated the environment of harassment GamerGate became known for. Its ever-expanding list of targets and arguments

also prevented any opportunity for moving beyond invention toward some form of outcome or realized argument beyond mob-like aggression. While this likely was intentional for many participants within GamerGate, the absence of any mechanic to resolve and justify its existence clearly separates GamerGate from mission-based activism of other Twitter activism, including the Arab Spring, Black Lives Matter, and MAGA.

*Rather than possessing a single,
authoritative argument, GamerGate
welcomed whatever argument caught fire.*

None of this is to excuse those who participated in GamerGate. Its use of unethical dark patterns were clearly more harmful to its targets than its participants. Its participants also had the opportunity to recognize the structure of the activist supraplatform for what it was. However, Lanham did not highlight oscillation in his research because it was easy or innate. Recognizing how dark patterns can exasperate harassment and prolong mob-like activity is important for rhetoricians and digital design. Spaces like Twitter must make clear-headed choices about how conflation of platform purpose and user experience makes them vulnerable to abuse and potentially undermines their goals as both a media platform and an activist supraplatform.

ENDNOTES

1. Doxxing is the making public of someone's private information online with the intent to harass the target. return
2. We selected a 24-hour period in November to sample tweets. This period was at the height of the GamerGate cycle and thus sufficiently removed from the initial origins so as to more fully represent the spread of messaging. We chose tweets from this period with the GamerGate hashtag and randomly sampled 100 tweets. We opted to evaluate only tweets and not retweets to reduce the role of contextual and conversational confusion in our coding process. return
3. Social justice warrior or SJW in this use is a pejorative term for someone who openly discusses social justice issues online. return

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OUR GAME COULD BE YOUR LIFE

EXCERPT FROM *RESONANT GAMES: DESIGN PRINCIPLES FOR LEARNING GAMES THAT CONNECT HEARTS, MINDS, AND THE EVERYDAY*

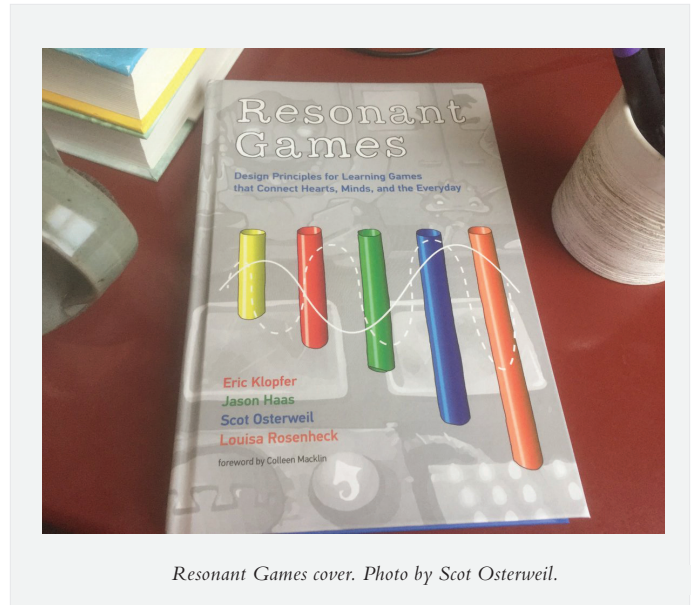
If you want to build a ship, don't drum up people to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea.

— Antoine de Saint-Exupéry

We are a group of scholars and game designers at the Education Arcade at MIT, where we develop learning games about scientific and mathematical concepts and real-world problems. Our goal with our learning games is to command your attention and passion and, we hope, change how you think about the world in the process. Learning is cultural, an activity that is shared and happens in communities, but learning is driven as much by passion, personal interest, and curiosity as it is by the world around you. Games are also cultural artifacts — they have bedrock roles in human culture, whether they exist as an abstract set of rules in the shared minds and memories of a community or as a box containing a mess of code on a disc that costs \$60 (experience may change in online play). Games depend on shared, playful participation within a set of rules. They can bring people together and accumulate meanings within the culture at large, and they can also create particular meanings to every person who comes into contact with them. Although games are necessarily limited by a circumscribed set of rules, this capacity for larger shared meaning — resonance — makes them powerful platforms for learning.

Too often in contemporary society, though, the ideas of “learning” or “education,” important mechanisms by which we induct young people into our society and provide access to all that we know and how we came to know it, are confused with “schooling.” While schools are, in many societies, important locations for the enculturation of our young people, they can be caught up in efficiently completing bureaucratic processes or satisfying benchmarks created more for political expediency than for pedagogically sound reasons. Although game-based learning is gaining recognition within education systems, too often the games are narrowly focused on specific learning outcomes dictated by school curricula. These narrowly targeted games can fail to connect with young learners.

In the Education Arcade, we have spent over a decade designing



Resonant Games cover. Photo by Scot Osterweil.

learning games that could come to be your life — artifacts that could be a part of your life in school and at home, that could rouse your curiosity and determination, that might even seep into your dreams and imaginations. (Everyone's had a Tetris dream or a Rock Band dream, right? We talk to teachers all the time who have complex systems-simulation dreams after using our StarLogo Nova application.) Our games are designed to resonate with your life, with your passions, and with all the systems in which they are embedded. This book is a compendium of principles we have used to design our learning games, illustrated by projects we have created with these principles in mind. We call the sum of these principles “resonant design,” and the games that embody the spirit described by these principles, “resonant games.” Through this resonance, the games amplify the systems to which they are connected — school, home, life, friendships — connecting them and making them more meaningful. This is obviously not the only approach to developing learning games. We hope that by elucidating our principles and practices (and our successes and failures), we can further a culture of passionate learning with aesthetically beautiful and intriguing artifacts. We hope that we see more and more games in the world that we wish we had made!

We've seen these principles emerge in our own work over the last two decades, but we are also indebted to the great writing of James Paul Gee, Kurt Squire, Constance Steinkuehler, Ian Bogost, T. L. Taylor, Bernie DeKoven, Sasha Barab, and others who have described the value of video games (and other games) as sites of struggle, persistence, failure, great imagination, and deep learning. In other words, games are sites of great humanity, and they are frequently sites of great learning as a result. Video games are cultural artifacts and designed experiences. Games are highly effective abstractions and models for experiential learning, as well as being deeply social. They are both powerful and intimate. They are a mess. Or a mangle. Or an assemblage. They are action and reflection. We think of our games not as interventions that can be doled out in reliable doses with predict-

Klopfer, E., Haas, J., Osterweil, S., & Rosenheck, L. (2018). *Resonant Games*. Cambridge, MA: MIT Press. mitpress.mit.edu/books/resonant-games and www.resonant.games.

Read more about Resonant Games: “What makes an educational video game work well?” news.mit.edu/2018/educational-video-resonant-games-0920.

able results, but instead as provocations, designed to solicit questions, arouse passions, and stimulate great discussion in learning communities.

In this book we argue for a philosophy of learning game design that is passionate, highly engaged, and welcoming. We are also primarily directing our attention at the learning of young people in and around the deliberate learning environment that is American public schooling, an environment that, on average, could probably use more passion, engagement, and welcoming. One of our most adamant beliefs is that context matters, and that all educational technology is only as useful and good as its implementation. When you read this book, if you are a mentor in another sort of learning environment or you design for one, feel free to adapt our thinking to your needs — you know your context better than we will. We do take some trips outside school in this volume, so perhaps you will also find something for your situation there. In the main, though, this is a book about the roughly fifty million children who go to school every day and are faced with uninspiring learning environments — learning environments where often heroic (but sometimes not) teachers are overworked and overly constrained by (possibly) well-meaning bureaucrats who have drained schools of professional control and personal efficacy through (yet more possibly) well-meaning policies.

THE PRINCIPLES

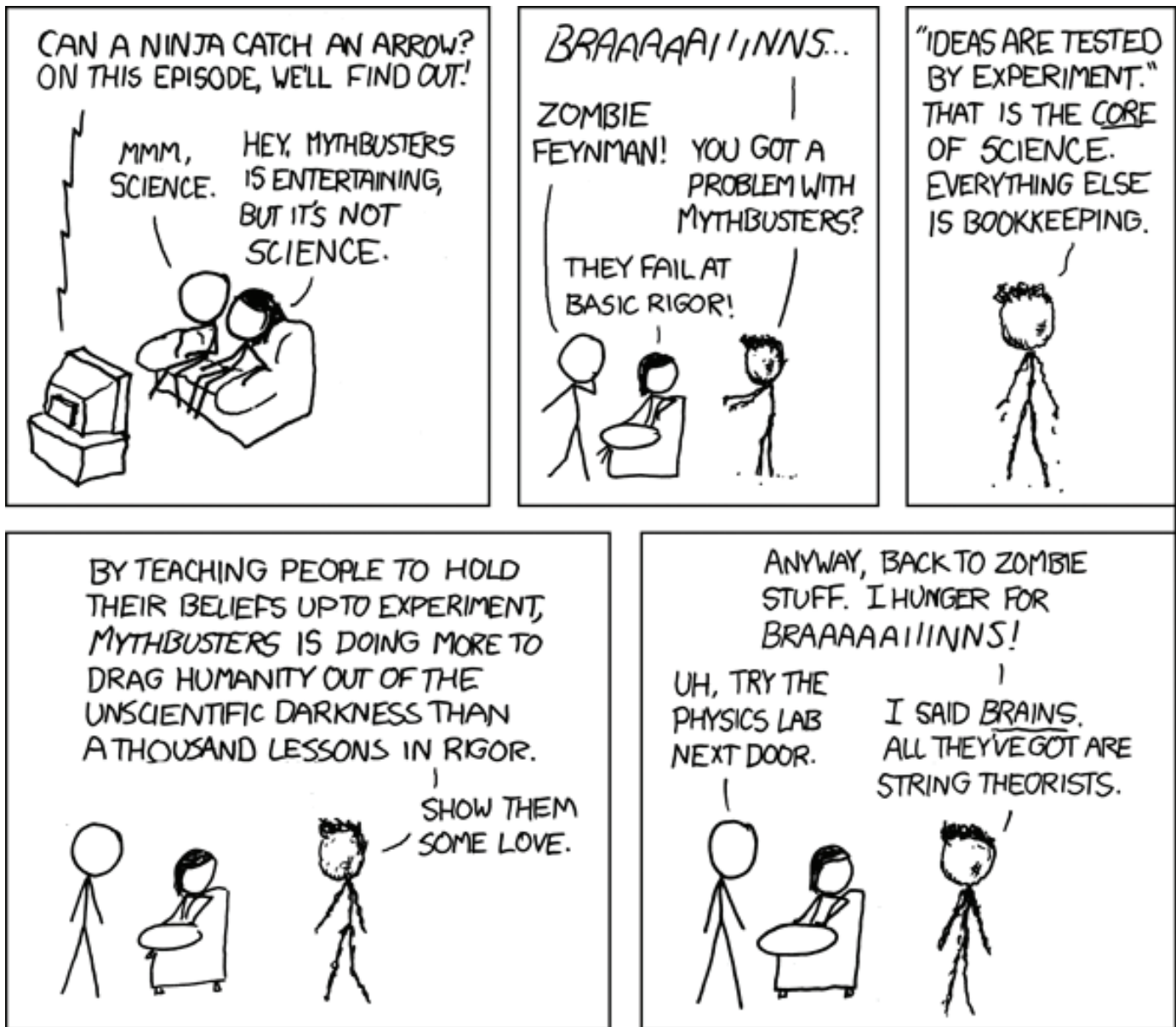
While resonant games vary widely in format and content, they share characteristics that create deep learning experiences inextricably connected to the educational ecosystem they exist in. This book describes twenty design principles that we believe are essential for reaching the learners you wish to reach, getting and holding their attention, and even invading their dreams. We have distributed the principles throughout the book organically, tying these broad, abstract ideas to appropriate projects from our lab that we believe illuminate and exemplify them. Instead of debuting all twenty principles here in the first chapter and risking overload, we instead present four broad overarching organizing principles for how we see resonant design.

First, honor the whole learner. Resonant design is incompatible with views of learning and of intelligence that see those seeking to learn as empty vessels awaiting “fill-ups” on knowledge. Learners must be seen as full human beings with a range of passions, likes, and dislikes. They have homes, social lives, and interests outside a given opportunity to learn. They have good days and bad days and physical bodies. We believe that we as game makers must hook students using all the things that hook us (and probably hook you too): telling them a good story; trying to understand them well enough to present them with puzzles, challenges, or other provocations that speak to them; and meeting them where they are. Human beings may be at their best when they are imagining how things might be otherwise, or when they are hard pressed to solve a complex problem, or maybe both. The best games for learning, we feel, place the learner in situations that might strike their fancy as well as presenting problems that keep them up at night. It helps to know and like people, and to know what people are like, too. Learners do not come in standard packages, and indi-

vidual lives, tastes, and minds are highly idiosyncratic. Accordingly, we know that not every problem is going to enthrall everyone alike.

Second, honor the sociality of learning and play. Very few of the games described in this project are what might be called “single-player” games. Most of them could probably be played (or even have phases that should be played) in an isolated, “just me and my computer” fashion, but those players would be missing out on essential parts of the experience. Resonant design is predicated on the idea that learning is both an individual and a social experience. Self-taught learners who never connect their knowledge to that of others may have reliable abilities to produce meaning, but those meanings may lack validity. Resonant games are designed so that they bring many players into conversation with each other and with the game, drawing people into the world together through provocation instead of by broadcasting a single message. It is important to provide several challenges for players to do together, to figure out together, and to reflect on together. Providing players with open-ended, ill-structured problems can greatly aid this, as can putting players into situations of collaboration, cooperation, and even competition. Growing evidence and theory points to the tremendous importance of sociality to humans, and as such, it is a crucial piece of resonant design.

Third, honor a deep connection between the content and the game. Resonant design takes the connection between learners and knowledge, skills, and practices very seriously. All games, in their way, are learning games — players learn systems, strategies, and tactics; they learn about their opponents and teammates — but the games we are discussing are those specifically for learning what some may call “academic” content and skills. We are circumspect about the use of this word only because many of the ideas, skills, stories, and habits that could be considered dry or overly abstract are actually pretty wonderful. Some are useful; some are inspiring, giving us a sense of the world beyond our experience; some help explain how and why the world is as we encounter it; and some challenge our understanding of the world. Most have some connection to people’s everyday reasoning. We sometimes hear designers, publishers, and funders say things like, “Can you make [a certain topic] fun?” This seems like a mistake to us, because most human knowledge was pretty fun for someone to create. Someone really wanted to understand how to balance the value of discrete unequal things, so they invented algebra. Someone really wanted to understand the causes of systemic racism in America despite the unrelenting bleakness of the subject matter, and researching it was fun for them. To help students develop competencies and develop their own passionate questions about the world, it is essential to figure out what is already fun about the matter at hand. The thing you want your students or audience to know is already fun. If you are asking, “How do I make [this topic] fun?” then you need to reconsider your approach. Resonant design is not about inserting content into games. It is about deeply connecting the game and the learning. It is not about fun in the sense of continuous enjoyment, but rather fun in the sense of continuous engagement. This is why we chose the Saint-Exupéry quotation as an epigraph for this chapter, as well as the xkcd webcomic below. In the comic, beloved, exemplary scientist Richard Feynman has returned from the



xkcd.com/397

dead to make it clear to someone abusing the giddy research energy of TV's Mythbusters that her wan professionalism is as far from the core of science as Pluto is from the sun (or from being a planet).

Fourth, honor the learning context. While learning does happen all the time, all over the place, most academic knowledge is learned in schools. For the vast majority of American students, including those hardest to reach and those with the least opportunity to access complex academic ideas, this means the public school system. While some consider this situation a massive tragedy, and others, a great benefit, to us, it simply is. This is the context in which we design. Resonant design is dedicated to finding the patterns necessary for fitting designed experiences into people's lives and into contemporary classrooms. It is also dedicated to finding the best ways to work with educators and policy environments to ensure that complicated edu-

cational experiences can be used in the classroom and will be used in the classroom.

This means codesigning experiences with educators, developing bridge curricula, paying careful attention to standards and other policy variables, and providing professional development for educators. We are still dedicated to a progressive pedagogy that aims to change many of the ways in which public education is approached. A crucial part of our practice involves compromising on issues that do not matter in order to ensure adoption, while fiercely maintaining the integrity of our pedagogical philosophy and learning goals.

We also recognize that while school is the principal site of learning in our society, our cultures of learning can be somewhat impoverished outside schools. Resonant design is as dedicated to fitting into lives outside school as it is to fitting into school. ●

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 showcas-

ing 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 asee.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. ●

Originally published at news.mit.edu/2017/closing-the-gender-gap-in-mit-mechanical-engineering-0731

HIGHLIGHTED 2018 EVENTS

MUSIC FANDOM AND THE SHAPING OF ONLINE CULTURE

Podcast: cmswm.it/baym-podcast

By the time musicians and industry figures realized they could use the internet to reach audiences directly, those audiences had already established their presences and social norms online, putting them in unprecedented positions of power. Even widely-hailed innovators like David Bowie, Prince, and Trent Reznor were late to the game. This talk traces the intertwined histories of music fandom and online culture, unpacking the fundamental disruption and its broader implications for interacting with audiences.

CIVIC ARTS SERIES:

MARISA MORÁN JAHN

Thursday, October 1 @ 5:00 pm

MIT Building E15, Room 001 ("The Cube")

Marisa Morán Jahn is a multi-media artist, writer, educator and activist, whose colorful, often humorous uses of personae and media create imaginative pathways to civic awareness of urgent public issues.

GRADUATE PROGRAM INFORMATION SESSIONS

Comparative Media Studies

Thursday, November 1 @ 11:00 am – 1:00 pm

MIT Building E51, Room 095

Registration required: cmswm.it/cms-info-session-2018

Or view live online at cmsw.mit.edu

THE JULIUS SCHWARTZ LECTURE: BRIAN MICHAEL BENDIS

Thursday, November 8 @ 5:30 pm

MIT Building 32, Room 123

Info: cmsw.mit.edu/bendis

We're thrilled to feature award-winning comics creator Brian Michael Bendis, a New York Times bestseller and one of the most successful writers working in mainstream comics.

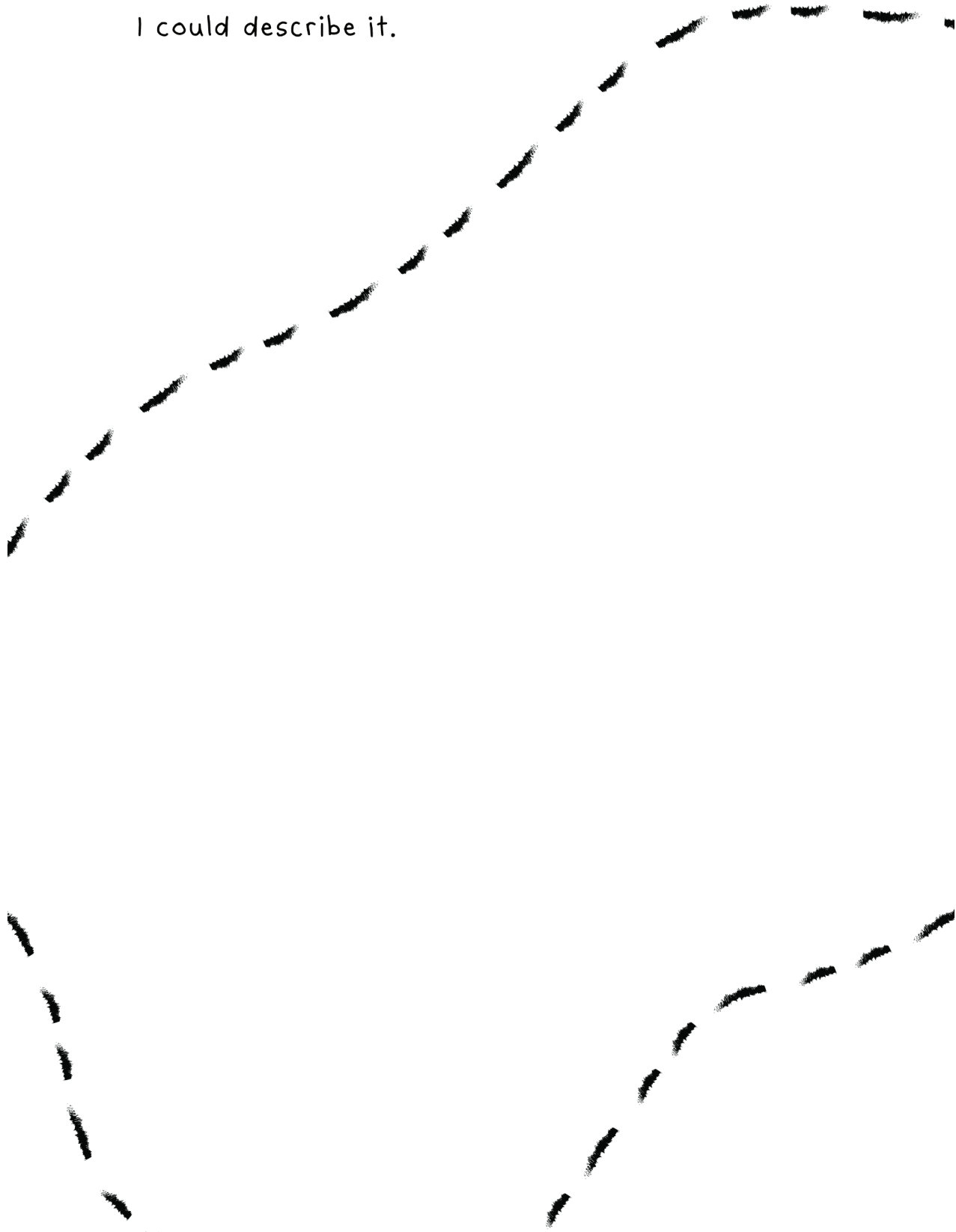
GIRL MEETS

World



a memoir?! by jackie liu

Emptiness
was the best way
I could describe it.



Hey, it's been a while. It feels important for me to be able to have a face-to-face conversation about all this. Could we meet next week?

✓ Read 5 weeks ago





Aa



It took the shape of a guy that was once there, but then suddenly, not.

It took the shape of evidence that told me I was silly, for trying to pursue the things I wanted to pursue.

Your recent application - Design Intern



 **Goggle Recruiting** Mar 3 

Thank you for applying to the User Experience Design Internship. We carefully reviewed your background and experience, and decided not to proceed with your application.

We may contact you if we come across another opportunity. We wish you the best of luck in your search.

 [Click here to Reply or Forward](#)

Interview results

 **Macrohard Recruitment** Mar 9 

I wanted to follow up with you as soon as I had the results of your interviews. I regret to tell you the teams you interviewed with will be pursuing other candidates for their openings.


Thank you for taking the time to interview with us.

Thank you for giving us the opportunity to consider you for the Design Internship role. We have reviewed your background and qualifications and find that we do not have an appropriate position for you at this time. We appreciate your interest in our company and wish you success in your job search.


I hope you are eating healthy and losing weight! - Mom




It took the form of negative space on my body I thought I needed, in order to not feel like a failure.



I guess my psyche got tired of waiting and tried to fill the gaps while I dreamed.

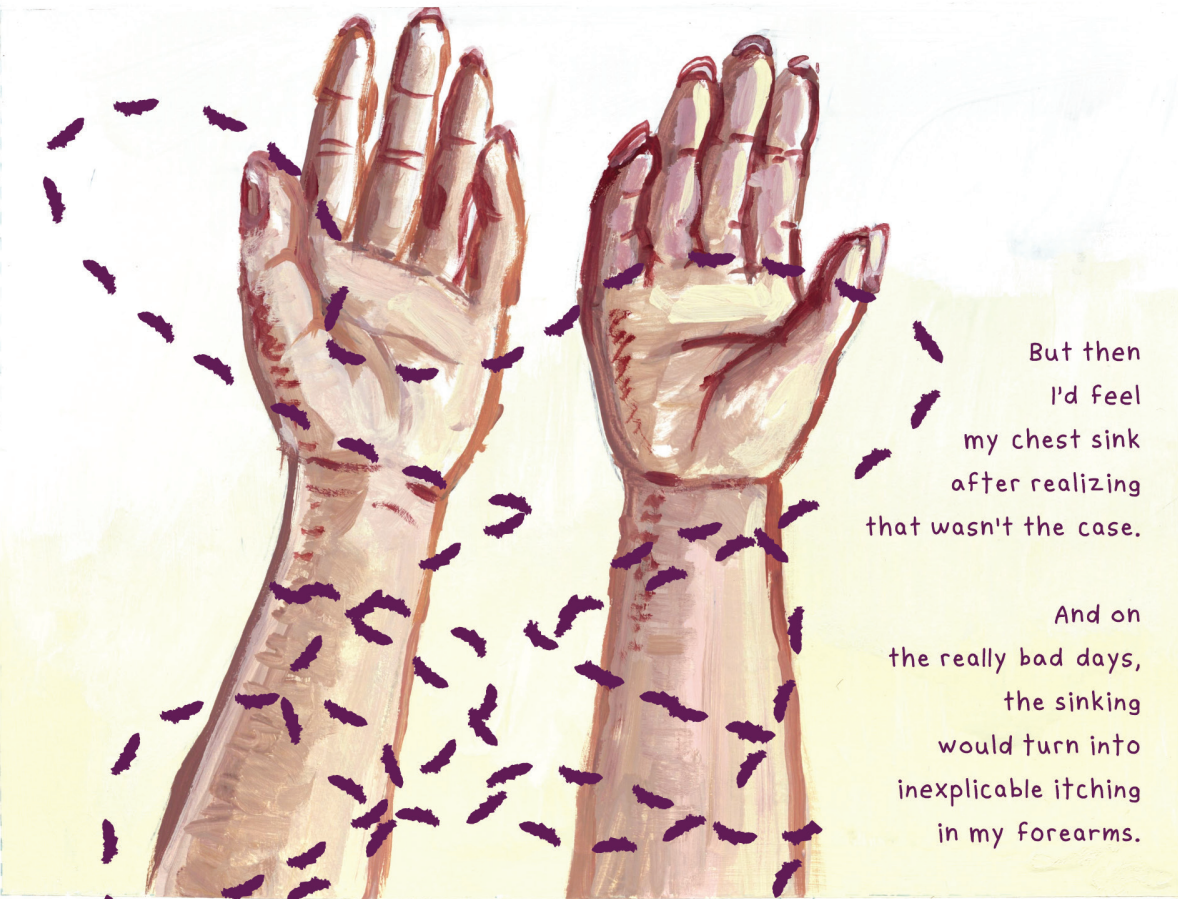


Hey, I'm sorry for causing all of this pain. I realize how much of a dick I've been and I really want to make things alright between us.



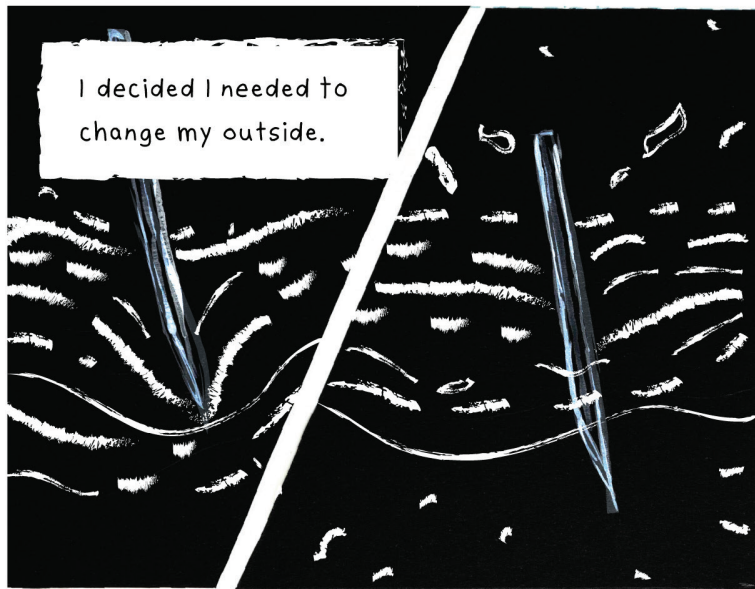
The moment I'd wake up I'd might believe,

for a sec, that things were actually resolved.

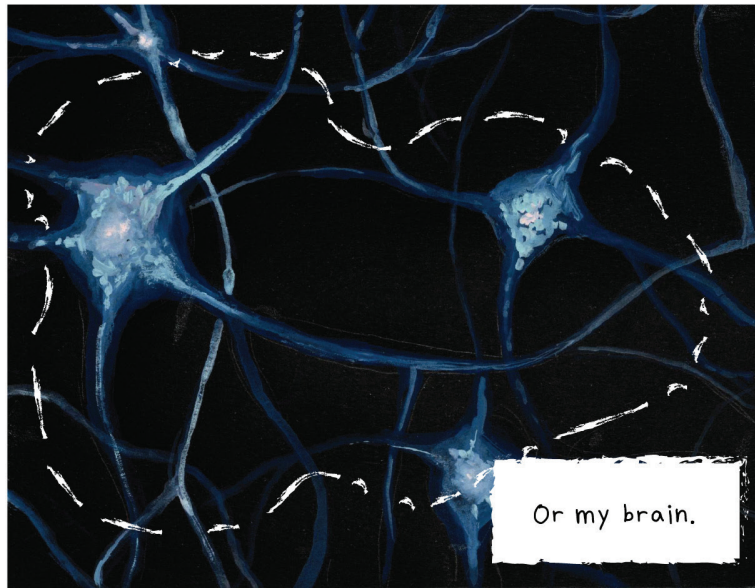
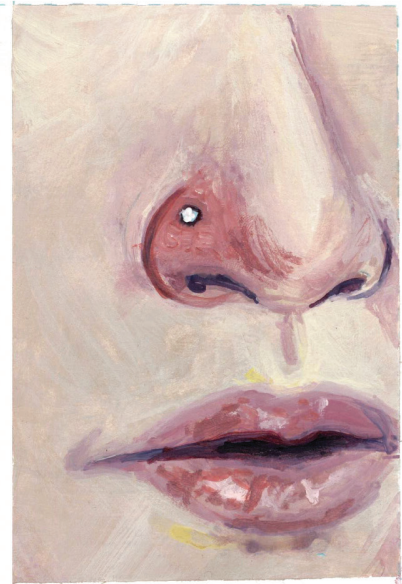


But then
I'd feel
my chest sink
after realizing
that wasn't the case.

And on
the really bad days,
the sinking
would turn into
inexplicable itching
in my forearms.



I decided I needed to change my outside.



Or my brain.



Maybe if I filled my time with enough stuff, I could drown it out.

Or maybe instead of fighting the emptiness, I could embrace it.





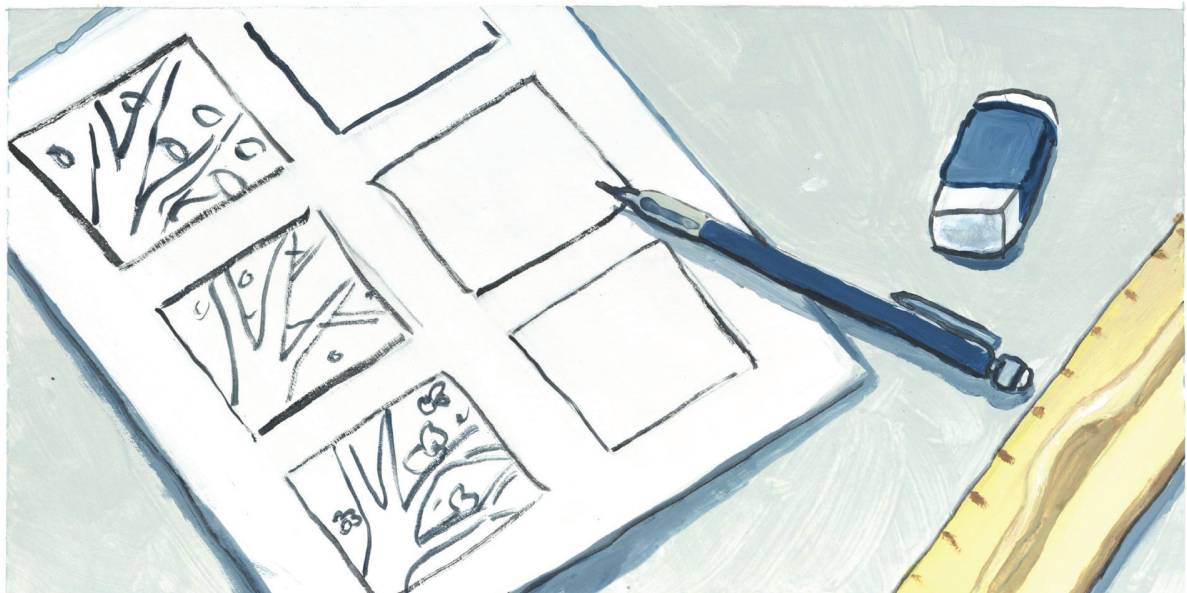
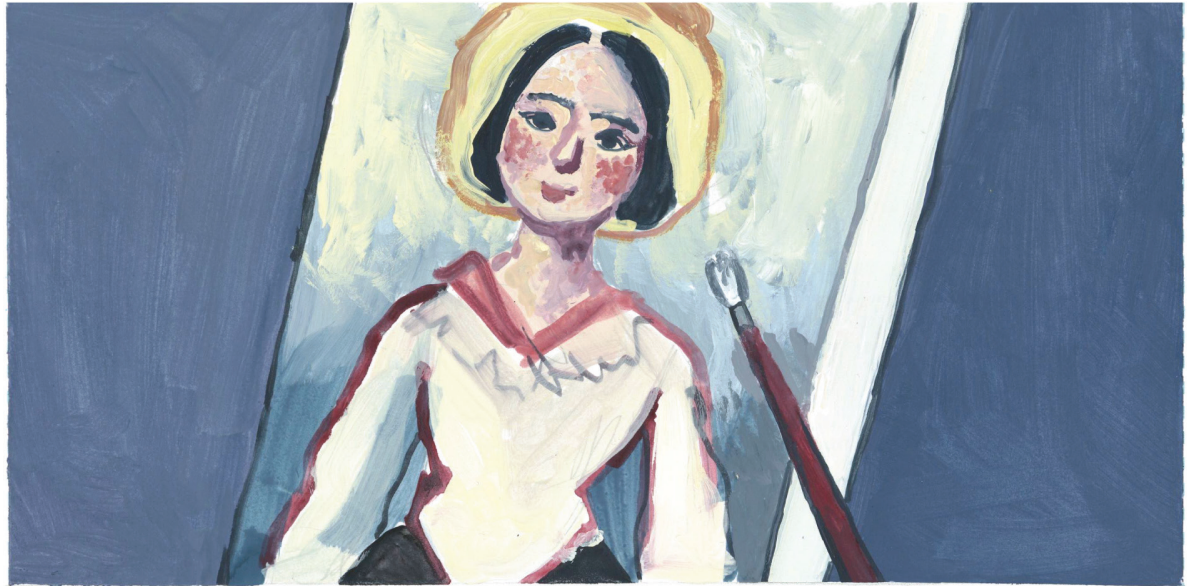
When I finally had the energy and time. I made myself pick up painting again.

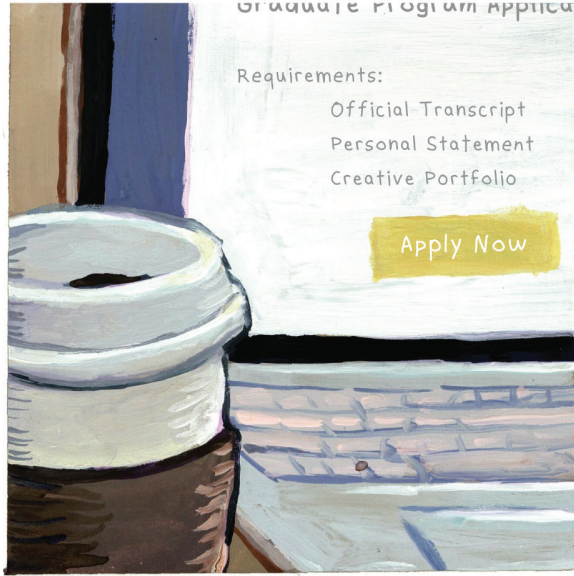
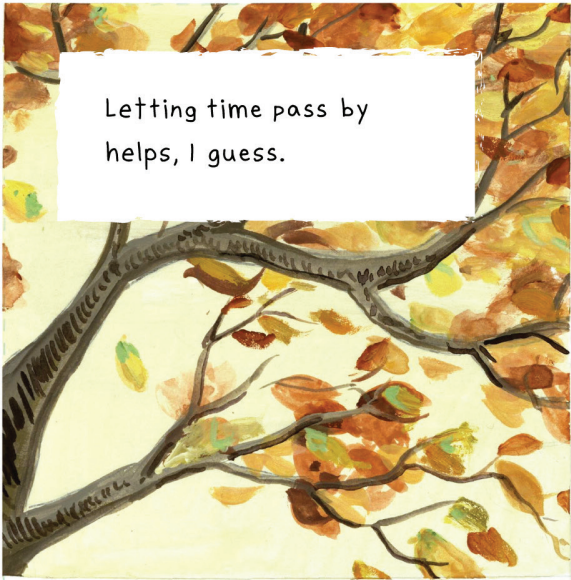
Maybe to remind myself I could still have control over something.

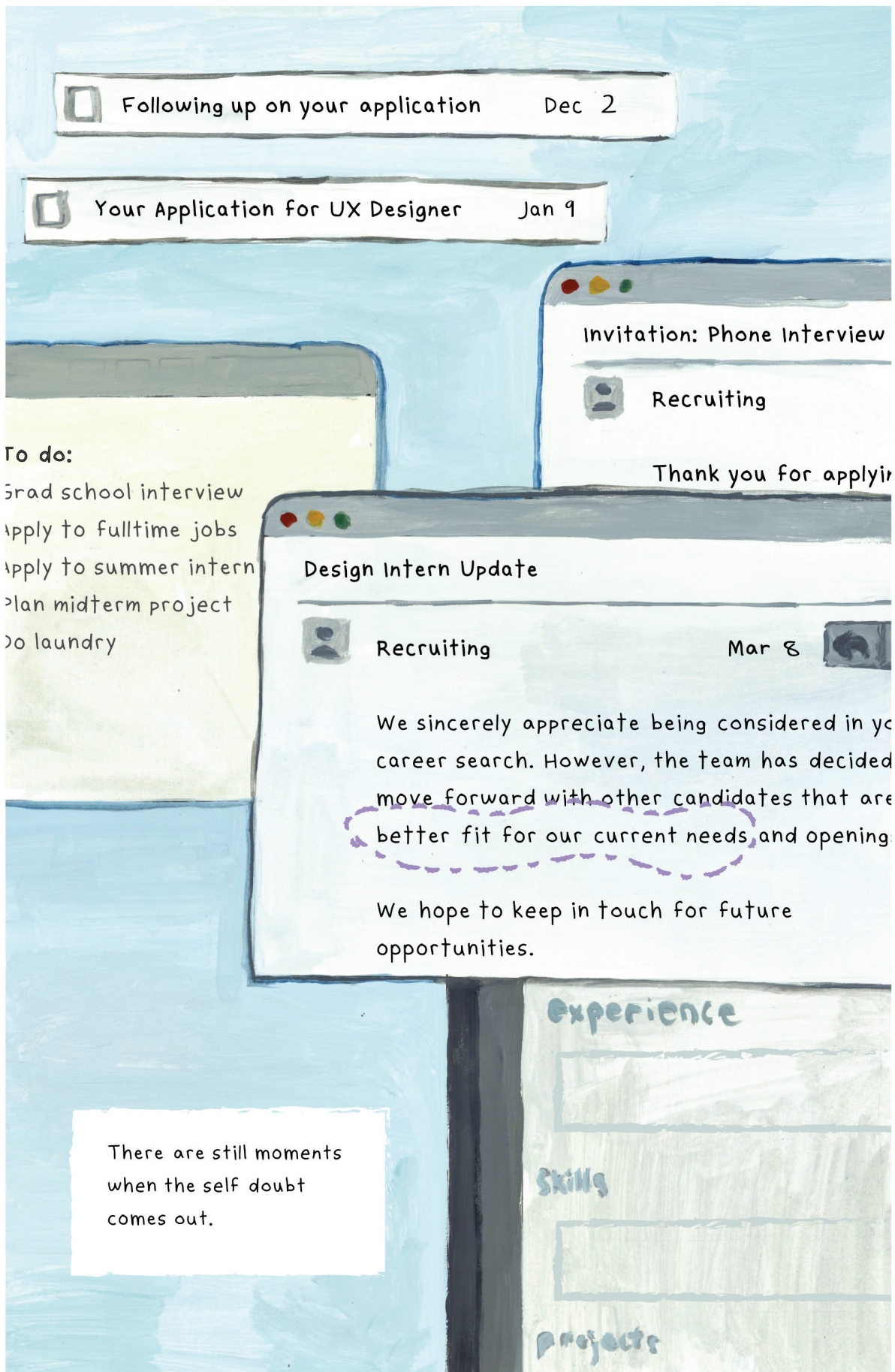
I'm not sure if there was
a definite turning point.



Having someone
to talk to helps.







Following up on your application Dec 2

Your Application for UX Designer Jan 9

Invitation: Phone Interview
Recruiting
Thank you for applyi...

To do:
Grad school interview
Apply to fulltime jobs
Apply to summer intern
Plan midterm project
Do laundry

Design Intern Update
Recruiting Mar 8
We sincerely appreciate being considered in yo... career search. However, the team has decided to move forward with other candidates that are better fit for our current needs and opening.
We hope to keep in touch for future opportunities.

There are still moments when the self doubt comes out.

experience
Skills
projects

It's a Match!



hey i had fun hanging out
earlier this week! lmk if you
wanna hang out again
sometime :)

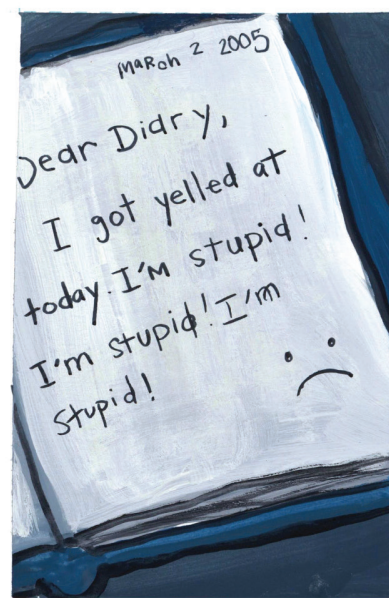


But I'm trying to do this
new thing, where I'm less
hard on myself.



I wish it was easy to love yourself.

Growing up, I never thought being nice to yourself was an option.



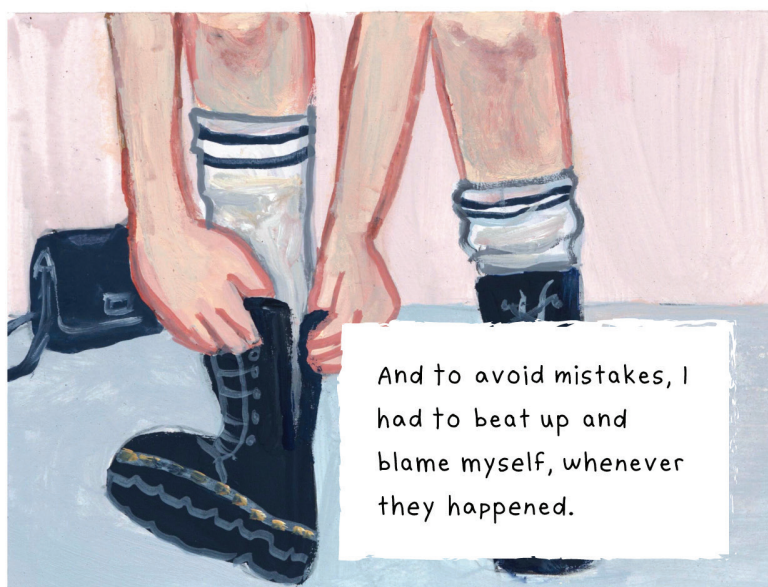
MAR 2 2005
Dear Diddy,
I got yelled at today. I'm stupid!
I'm stupid! I'm stupid!



To be successful, and good, I had to avoid mistakes.



PRACTICE EXAM
SAT College



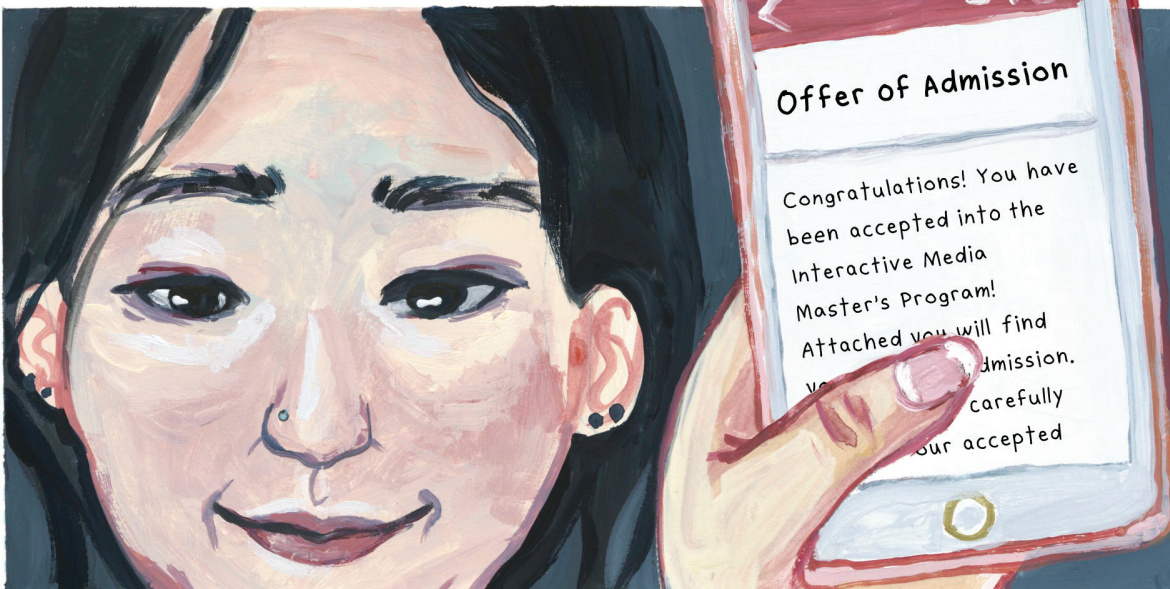
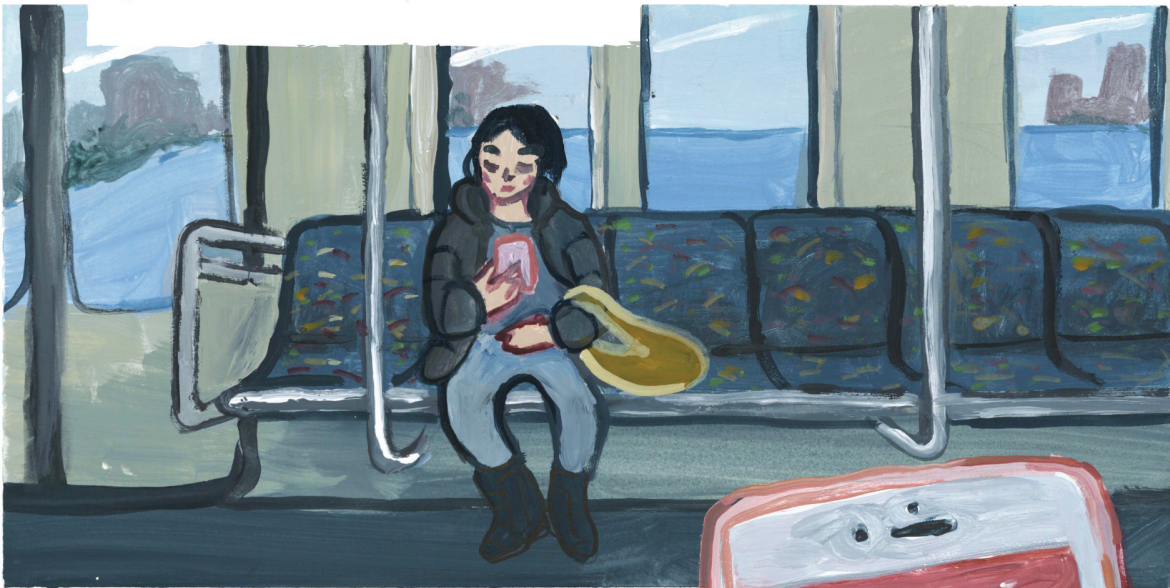
And to avoid mistakes, I had to beat up and blame myself, whenever they happened.



i'm sorry i'm sorry i'm sorry
sorry i'm sorry i'm sorry
i Fucked up i'm sorry



But, gradually, there have been more moments where I feel like my life is going forward the way it's meant to.



Offer of Admission

Congratulations! You have been accepted into the Interactive Media Master's Program! Attached you will find your admission. Please read it carefully. We are so happy to have you accepted.

It's still scary to put myself out there.

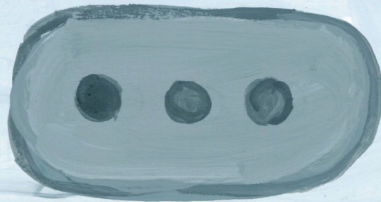
hey do you want to hang out this saturday??

✓ Read 3m ago

I'm not sure if it will ever entirely not be scary.

hey do you want to hang out this saturday??

✓ Read 3m ago



hey do you want to hang out this saturday??

Sure! what time are you thinking?

But somehow it feels a bit lighter, and the stakes don't feel as high as they used to.



I know that,
at the very least,

I have
the ability to
keep on going.

ALUM CANDIS CALLISON DELIVERS THIS YEAR'S MIT PH.D. HOODING CEREMONY ADDRESS



Photo by Dominick Reuter

On June 7, CMS alumna Candis Callison, S.M., '02, Ph.D., '10, addressed the assembled 2018 recipients of MIT doctoral degrees and was kind enough to let us reprint the text, below.

Callison, an Associate Professor in the Graduate School of Journalism at the University of British Columbia, is known for her recent work on journalistic practices in the Canadian arctic as they — the journalists, their practices, and the arctic — deal with a changing climate, and her work inevitably led to her call at the hooding ceremony for new graduates to create “better systems and processes that make the world a more just, more fair place for all of us to live in.”

Callison wrote her CMS thesis about British Columbia's Stikine River watershed, specifically a cultural and technological account of “how to represent the complexity of social realities through the limitations and capacities of various forms of media and digital space.” She went on to earn her Ph.D. at MIT in History, Anthropology, and Science, Technology, and Society; in her dissertation, she conducted an ethnographic study of how different groups, from native councils to

*evangelical Christians, discuss climate change. The work grew into her book *How Climate Change Comes to Matter: The Communal Life of Facts* (2014).*

We were thrilled to welcome her back to campus and are just as happy to hear she won't be a full continent away in 2018-19, as she spends the year at Princeton University as the Pathy Distinguished Visitor in Canadian Studies.

Thank you, Chancellor Barnhardt.

Congratulations! And let me add some praise for your families and all those who have supported you through the ups and downs of getting a Ph.D. from this amazing institution!

I also want to thank Eric Grimson, the faculty in Science, Technology, and Society, especially Michael Fischer and Chris Cappozola for nominating me, and the student committee whose chose me (of all people) to speak here today.

How good do you feel today, wearing these fancy gowns for life?!

I want to greet you in the language of my Tahltan ancestors: Chacholone hoti'e Takstian didene de'ots'i. Tsesk'iy'e esda tsehi. Good morning. I am Tahltan from the Crow Clan. We are one of many Indigenous peoples with thriving communities throughout the Americas.

I asked an elder from my community how to offer you all 'congratulations' in our language. She told me to say to you: "Soga nada'dich" which roughly translates to "I'm happy for what you have all done."

One last thing to learn before you leave MIT – say it with me: Soga nada'dich! Now, turn to the person beside you, and say – Soga nada'dich! Congratulations! (You now know how to say something in a Dene language from the northwestern part of the continent, near the Arctic Divide.)

It's also part of Indigenous traditions to honor the lands we speak on – today, I want to acknowledge we are on the ancestral lands of the Massachusetts, Nipmuc and Wampanoag people, Algonquin speaking peoples that have been in relations with the lands and waters in this region since time immemorial.

Seven years ago I sat where you are, and I can't say I ever thought I'd be up here at any point in the near or distant future.

I still vividly remember donning this robe for the first time. I had flown back here for graduation ceremonies after finishing my first academic year in a faculty position.

I got up early to get my family ready – my youngest daughter was not yet 2 years old and in a stroller, and my 7 year-old daughter was asking me a million questions, gown billowing in the wind, as we walked as fast as we could across campus to get here in time.

For me, like I imagine it is for many of you, this day is both a dream come true and the culmination of so many choices, hard work, small and big transformations — and many moments of: oh phew, got that requirement done, what's next?

So here you are at another precipice of 'what's next?' And I'd encourage you to take some time to reflect on your story – on how it is that you got here.

Mine, as you've probably guessed, is not a typical story in any way.

I came to MIT in my late 20s, leaving a great career in journalism and media. By the time I was 25, I had a national television show in Canada – the first of its kind on Indigenous issues.

This was back in the day when TV and being on TV mattered much more than it does now.

I took a huge risk and left my show in Canada to join a media tech startup in San Francisco, and next moved to a search engine here in Boston. Then, I found this amazing MIT program called Comparative Media Studies that had just been launched by Henry Jenkins. My huge thanks to Henry. CMS was an incredible experience for me.

I was one of those early Internet nerds who was so totally excited about a future in which everyone had a voice and could fully participate in media and democracy. If you've paid attention to some recent hearings about fake news – yeah, that's really not worked out the way anybody thought it would.

When I started at MIT, media was a profoundly different landscape. There was no Facebook or Reddit or Youtube – Google was in its

infancy and not the verb it is now. (You realize of course that most of the population under 20 finds this all unimaginable).

I often think back to those supposedly good 'ol days of the early Internet years not with nostalgia, but with a sense of purpose and hindsight recognition of the leaps and risks I was willing to take to pursue what mattered to me even as everything around me was changing and evolving very fast.

MIT is not anywhere close to where I dreamed that I would end up. In fact, neither me nor my family were oriented in this direction.

One spring when I was well into my Ph.D., I went back to Tahltan country – which is near the Alaska, Yukon, British Columbia border so, pretty far from here. We were in the middle of one of the most remote areas on the continent having ridden horses for a day to get in there from the nearest rural gravel road. We were clearing out one of my dad's old hunting camps, and my dad, who's very worldly knowledgeable and well travelled – but decidedly not an academic, says to me: you know I had some Americans out here and they said you go to a really good school.

Yep, I said: it's pretty good.

It wasn't until I had been here for a while that I realized why and how I had landed here.

MIT is a place that values not only experimental methods and outcomes in research, but an experimental life: working hard, taking detours and risks, becoming resilient when things don't go as planned, taking the scenic route through failures and innovative efforts to define and solve problems.

There are very few – if any other places- that I think would have had faculty who supported me to do my coursework and research the way I did. My committee – Mike Fischer, Joe Dumit, Sheila Jasanoff, and Chris Walley were excellent.

For my dissertation, I actually thought I would choose a backburner issue which not very many people were talking about in 2002 – climate change.

My inspiration came from a first year class taught by Professors Evelyn Fox Keller and David Marks on Global Environmental Politics – this is one of those made-at- MIT classes where a leading feminist science scholar joined up with the head of what was then called the Lab for Energy and the Environment and the class was full of science, engineering, STS and Sloan students. In one class, everyone started complaining about media coverage of climate change – and why couldn't we just tell people to care and solve this problem already??

Being the only person in the room with media experience, I took them all on. I countered that if we wanted people to have a complex view of scientific facts, we also all needed a more complex framework for considering how society worked and what role media could and should play in making science meaningful for the public.

A week later, I was still fuming about this discussion so I decided I would have to come back to this argument with some better data. It was then that I began developing a research project that took me up to the Arctic, down to the tip of Florida, and to buildings I had never ventured into on this campus to talk to scientists, journalists, religious leaders, Indigenous leaders, and corporate responsibility activists about how climate change comes to matter.

I also had my children while I was doing my Ph.D....just in case you thought I was joking about leading an experimental life.

My oldest daughter was born in the middle of my second year, and my youngest daughter? I found out I was pregnant a few months before my dissertation was due and a few days after I signed on to a new tenure track academic job.

Professor Dave Kaiser was head of STS at the time, and he had the awful task of calling me to see if I was going to finish before or after the baby arrived...it turned out I finished after she arrived, but thanks to my mom and husband's help, I did manage to defend 4 days before I started a full time faculty job.

STS was incredibly supportive, and I think things have changed a bit since then. For example, there was no maternity leave for grad students at MIT when my oldest daughter was born, but there is now.

And there was a time, I'm not sure if it's still true, when I used to say it was actually harder to get into MIT daycare than it was to get into MIT.

There is no template for being a working parent. It takes constant adaptation to find ongoing life and work balance. And that's true whether you have kids or not.

Having a community of others who are doing what you're doing really helps – it isn't all about leaning in, regardless of what all the famous tech parents say, it's more often about slowing down and making careful choices about where you want to devote your time and energy.

You can't do everything well all the time, but you do have to get the big stuff right — and stay close to what matters to you.

Determining what the big stuff is to 'get right' can be a challenge when you leave MIT.

Here, I'm willing to bet that your entire life force has been directed towards getting this degree.

An MIT Ph.D. is a big get, and everything orients around it, sometimes to the point, where it's hard to see much else.

People in your life may have pointed that out to you a time or two.

But those of us in these gowns today know that it takes a lot of mettle to succeed here – to measure up to the standards and expectations of your advisors, your fellow grad students, your committee, your department and all the alums you look up to and whose work you've read.

And it's worth it, right? An MIT Ph.D. is so much more than just pretty good.

If you choose to be faculty like I have, you're likely meet some alums who will give you some advice. At one of my very first faculty luncheons, I got seated beside an extremely successful senior colleague. We had a nice round the table chit-chat and then broke off into small group conversations. At one point, he leaned over to me and said:

I went to MIT too and listen, it's all downhill from there. Ok, so, don't panic. That's not exactly true.

This place is very special and you will miss it here. Hopefully not to the point where in your 50s or 60s, you'll be saying to your younger colleagues – hey kid, it's all downhill.

Instead of thinking of MIT as the highest point in my life, I've come to think of my time here as one of the best and most vital,

formative parts of my journey.

And I'd encourage you to consider it that way too – that it's neither a beginning nor an end. Thinking about where you've come from to get here, and imagining how your story continues after life here are equally important parts of the same process.

As you consider your future, how are you going to decide what the rubric is for pursuing an idea, for sitting down and writing that grant, for saying yes to a speaking engagement, for sitting on a board or moving into a leadership role?

I had a student come into my office at UBC a few months ago, and he had just come from reporting in a Syrian refugee camp half a world away. Mentally, he was still there; he couldn't leave. His core question was about how much he could ever do as a journalist to help so many people who were truly suffering.

Maybe some of you can relate to this in various ways. Maybe you come from other countries or communities in this country where you know what suffering, structural biases, and systemic racism looks like, up close – and maybe, MIT has kind of been an escape from all that.

With this degree in hand, however, you will be asked to intervene, to speak out and speak up, and to help solve problems with the expectations that the crucible you were formed in here gives you an edge – ways of coming at issues and problems that are rigorous, creative, hopefully compassionate, and definitely kick ass.

So I'll pass on the advice to you that I gave to my student – You have a tool with your MIT degree, and you likely also have a sense of the contribution you want to make that stems from the concerns that are part of your life story.

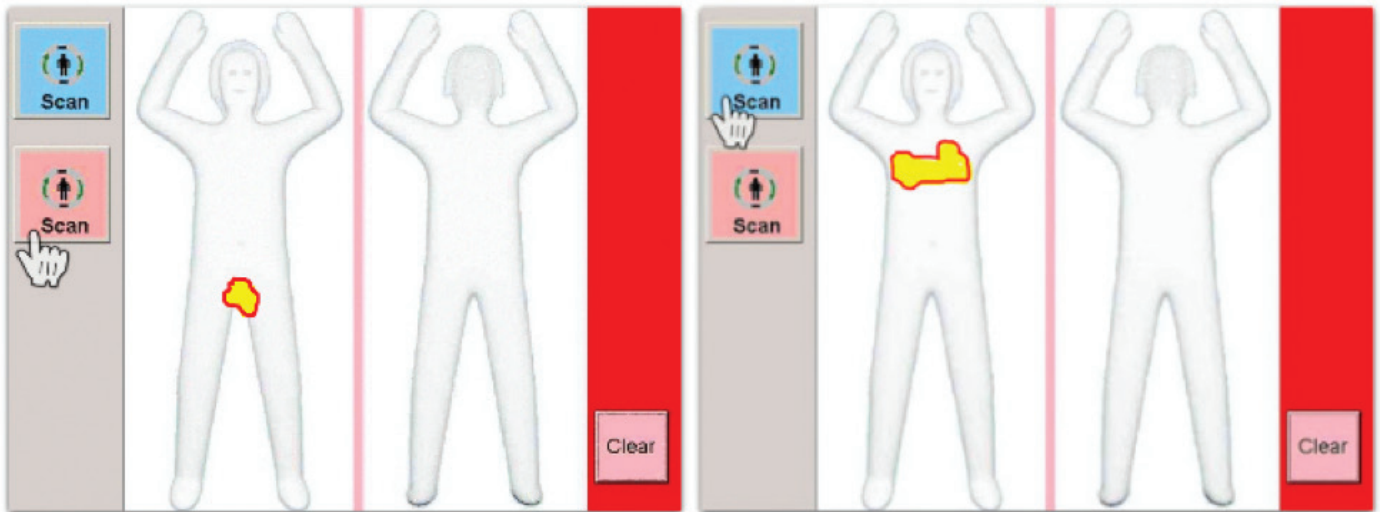
You now need to think about how those things fit together.

Science and technology haven't and don't emerge in vacuums. Nor, frankly, do they always make the world a better place. They map on to pre-existing problems, stories we've told ourselves about how our societies operate, and our experiences with persistent inequalities and injustices.

I've told you a few stories today, and here's why: Knowing your own story supports you to make ethical decisions as you experiment and adapt to the constantly evolving world we share. It gives you a window into the limits of your knowledge and experience, and potential unintended consequences of whatever kinds of projects you participate in developing. And over time, you'll likely come to understand how profoundly your own life has been structured by your relations with land and water, your gender, race, privilege (or lack of it), and historical, geographical, and colonial contexts.

The contributions you can make with your Ph.D. can amplify some kinds of data, collaborations, problems and solutions over others. Should you choose, your work and your research can shift society towards better systems and processes that make the world a more just, more fair place for all of us to live in.

In closing, let me congratulate you again. Despite what I was told, trust me, it's really not all downhill from here. The next leg of your experimental life is waiting for you, and you get to take this Ph.D., your MIT experience – and this gown! — with you, however you choose to continue your story. Soga nada'dich and Meduh. Thank you – and good luck out there! ●



DESIGN JUSTICE, A.I., AND ESCAPE FROM THE MATRIX OF DOMINATION

Sasha Costanza-Chock, Associate Professor of Civic Media, Mitsui Career Development Professor

“Design Justice, A.I., and Escape from the Matrix of Domination” won the essay category in the MIT Media Lab’s inaugural Resisting Reduction Competition, part of the Journal of Design and Science published by the Media Lab and the MIT Press.

PART 1: #TRAVELINGWHILETRANS

Millimeter Wave Scanning, the Sociotechnical Reproduction of the Gender Binary, and the Importance of Embodied Knowledge to the design of Artificial Intelligence

It’s June of 2017, and I’m standing in the security line at the Detroit Metro airport. I’m on my way back to Boston from the Allied Media Conference, a “collaborative laboratory of media-based organizing” that’s been held every year in Detroit for the past two decades. As a nonbinary, transgender, femme presenting person, my experience of the AMC was deeply liberating. It’s a conference that strives harder than any that I know of to be inclusive of all kinds of people, including Queer, Trans, Intersex, and Gender Non-Conforming (QTI/GNC) folks. Although it’s far from perfect, and

every year inevitably brings new challenges and difficult conversations about what it means to construct a truly inclusive space, it’s a powerful experience; a kind of temporary autonomous zone. Emerging from nearly a week immersed in this parallel world, I’m tired, but on a deep level, refreshed; my reservoir of belief in the possibility of creating a better future has been replenished.

Yet as I stand in the security line and draw closer to the millimeter wave scanning machine, my stress levels begin to rise. On one hand, I know that my white skin, U.S. citizenship, and institutional affiliation with MIT place me in a position of relative privilege. I will certainly be spared the most disruptive and harmful possible outcomes of security screening. For example, I don’t have to worry that this process will lead to my being placed in a detention center or in deportation proceedings; I won’t be hooded and whisked away to Guantanamo Bay or to one of the many other secret prisons that form part of the global infrastructure of the so-called “War on Terror;” most likely, I won’t even miss my flight while detained for what security expert Bruce Schneier describes as “security theater.”

On the other hand, my heartbeat speeds up slightly as I near the end of the line, because I know that I’m almost certainly about to be subject to an embarrassing, uncomfortable, and perhaps even humili-

ating search by a TSA officer, after my body is flagged as anomalous by the millimeter wave scanner. I know that this is almost certainly about to happen because of the particular sociotechnical configuration of gender normativity (cis-normativity) that has been built into the scanner, through the combination of user interface design, scanning technology, binary gendered body-shape data constructs, and risk detection algorithms, as well as the socialization, training, and experience of the TSA agents.

The TSA agent motions me to step into the millimeter wave scanner. I raise my arms and place my hands in a triangle shape, palms facing forward, above my head. The scanner spins around my body, and then the agent signals for me to step forward out of the machine and wait with my feet on the pad just past the scanner exit. I glance to the left, where a screen displays an abstracted outline of a human body. As I expected, bright fluorescent yellow blocks on the diagram highlight my chest and groin areas. You see, when I entered the scanner, the TSA operator on the other side was prompted by the UI to select 'Male' or 'Female.' Since my gender presentation is nonbinary femme, usually the operator selects 'female.' However, the three dimensional contours of my body, at millimeter resolution, differ from the statistical norm of 'female bodies' as understood by the dataset and risk algorithm designed by the manufacturer of the millimeter wave scanner (and its subcontractors), and as trained by a small army of clickworkers tasked with labelling and classification (as scholars Lilly Irani and Nick Dyer-Witheford, among others, remind us). If the agent selects 'male,' my breasts are large enough, statistically speaking, in comparison to the normative 'male' body-shape construct in the database, to trigger an anomalous warning and a highlight around my chest area. If they select 'female,' my groin area deviates enough from the statistical 'female' norm to trigger the risk alert, and bright yellow pixels highlight my groin, as visible on the flat panel display. In other words, I can't win. I'm sure to be marked as 'risky,' and that will trigger an escalation to the next level in the TSA security protocol.

This is, in fact, what happens: I've been flagged, the screen shows a fluorescent yellow highlight around my groin. Next, the agent asks me to step aside, and (as usual) asks for my consent to a physical body search. Typically at this point, once I am close enough to the agent, they become confused about my gender. This presents a problem, because the next step in the security protocol is for either a male or female TSA agent to conduct a body search by running their hands across my arms and armpits, chest, hips and legs, and inner thighs. The agent is supposed to be male or female, depending on whether I am male or female. As a nonbinary trans femme, I present a problem not easily resolved by the algorithm of the security protocol. Sometimes, the agent will assume I prefer to be searched by a female agent; sometimes, male. Occasionally, they ask whether I prefer a search by a male or female agent. Unfortunately, 'neither' is an honest but not an acceptable response. Today, I'm particularly unlucky: a nearby male agent, observing the interaction, loudly states "I'll do it!" and strides over to me. I say "Aren't you going to ask me what I prefer?" He pauses, seems angry, and begins to move towards me again, but the female agent stops him. She asks me what I would prefer. Now I'm standing in public, surrounded by two TSA agents, with a line

of curious travelers watching the whole interaction. Ultimately, the aggressive male agent backs off and the female agent searches me, making a face as if she's as uncomfortable as I am, and I'm cleared to continue on to my gate.

The point of this story is to provide a small but concrete example from my own daily lived experience of how larger systems - norms, values, assumptions - are encoded in and reproduced through the

I'd like to do three things: first, I've drawn from my own lived experience as a gender nonconforming, nonbinary trans feminine person to illustrate how sociotechnical data-dependent systems reproduce various aspects of the matrix of domination.

design of sociotechnical data-driven systems, or in Langdon Winner's famous words, how "artifacts have politics." In this case, cisnormativity (the assumption that all people are cisgender, or in other words, have a gender identity and presentation that are consistent with the sex they were assigned at birth) is enforced at multiple levels of a traveler's interaction with airport security systems. The database, models, and algorithms that assess deviance and risk are all binary and cisnormative. The male/female gender selector UI is binary and cisnormative. The assignment of a male or female TSA agent to perform the additional, more invasive search is cis- and binary gender normative as well. At each stage of this interaction, airport security technology, databases, algorithms, risk assessment, and practices are all designed based on the assumption that there are only two genders, and that gender presentation will conform with so-called 'biological sex.' Anyone whose body doesn't fall within an acceptable range of 'deviance' from a normative binary body type is flagged as 'risky' and subject to a heightened and disproportionate burden of the harms (both small and, potentially, large) of airport security systems and the violence of empire they instantiate. QTI/GNC people are thus disproportionately burdened by the design of millimeter wave scanning technology and the way that technology is used. The system is biased against us. Those who are also People of Color (PoC), Muslims, immigrants, and/or People with Disabilities (PwD) are doubly, triply, or multiply-burdened by, and face the highest risk of harms from, this system. Most cisgender people are unaware of the fact that the millimeter wave scanners operate according to a binary and cisnormative gender construct; most trans people know, because it directly affects our lives.

I share this experience here because I feel it to be an appropriate opening to my response to Joi Ito's call to "resist reduction," a timely intervention in the conversation about the limits and possibilities of Artificial Intelligence (A.I.). That call resonates very deeply with me, since as a nonbinary trans feminine person, I walk through a world that has in many ways been designed to deny the possibility

of my existence. From my standpoint, I worry that the current path of A.I. development will produce systems that erase those of us on the margins, whether intentionally or not, whether in a spectacular moment of Singularity or (far more likely) through the mundane and relentless repetition of reduction in a thousand daily interactions with A.I. systems that, increasingly, will touch every domain of our lives.

In this response, I'd like to do three things: first, I've drawn from my own lived experience as a gender nonconforming, nonbinary trans feminine person to illustrate how sociotechnical data-dependent systems reproduce various aspects of the matrix of domination (more on that below). Specifically, I've told a personal story that illustrates the reproduction of the binary gender system, and also hopefully demonstrates the importance of the intersectional feminist concepts of standpoint, embodied and situated knowledge, and nonbinary thought to A.I. systems design. This first point, in a nutshell: different people experience algorithmic decision support systems differently, and we must redesign these systems based on the lived experience of those they harm. Second, in the next section I hope to extend Joi's

Sometimes, the courts required Black women to include broader statistics for all women that countered their claims of discrimination; in other cases, the courts limited the admissible data to that dealing with Black women only. In those cases, the low total number of Black women employees typically made statistically valid claims impossible, whereas strong claims could have been made if the plaintiffs were allowed to include data for all women, for all Black people, or both.

critique of capitalist profitability as the key driver of A.I. by describing the paradigm shift wrought in many fields by the Black feminist concepts of intersectionality and the matrix of domination. Third, I'll briefly trace the encouraging contours of a growing community of designers, technologists, computer scientists, community organizers, and others who are already engaged in research, theory, and practices that take these ideas into account in the design and development of sociotechnical systems.

PART 2: A.I., INTERSECTIONALITY, AND THE MATRIX OF DOMINATION

Ito asks us to “examine the values and the currencies of the fitness functions and consider whether they are suitable and appropriate for the systems in which we participate.” He is primarily concerned with the reduction of fitness in A.I.

systems to efficiency and capitalist profitability. I share this concern, but I would also argue that we must resist the urge to reduce the cause of the planetary ecological crisis to capitalism ‘alone.’ Instead, we’ll need to pay close attention to intersectionality and the matrix of domination, concepts developed by legal scholar Kimberlé Crenshaw and sociologist Patricia Hill Collins (the 100th president of the American Sociological Association), respectively. These concepts help us understand how capitalism, white supremacy, and heteropatriarchy (class, race, and gender) are interlocking systems: they are experienced simultaneously, by individuals who exist at their intersections. This has crucial implications for the design of A.I. systems.

Intersectionality was first proposed by legal scholar Kimberlé Crenshaw in her 1989 article “Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics.” In the article, Crenshaw describes how existing antidiscrimination law (Title VII of the Civil Rights Act) repeatedly failed to protect Black women workers. First, she discusses an instance where Black women workers at General Motors (GM) were told they had no legal grounds for a discrimination case against their employer, because antidiscrimination law only protected single-identity categories. The Court found that GM did not systematically discriminate against all women, because the company hired white women, and that there was insufficient evidence of discrimination against Black people in general. Thus, Black women, who did in reality experience systematic employment discrimination as Black women, were not protected by existing law and had no actionable legal claim. In a second case described by Crenshaw, the court rejected the discrimination claims of a Black woman against Hugh Helicopters, Inc, because “her attempt to specify her race was seen as being at odds with the standard allegation that the employer simply discriminated ‘against females.’” In other words, the court could not accept that Black women might be able to represent all women, including white women, as a class. In a third case, the court did award discrimination damages to Black women workers at a pharmaceutical company, as women, but refused to award the damages to all Black workers, under the rationale that Black women could not adequately represent the claims of Black people as a category.

Crenshaw notes the role of statistical analysis in each of these cases: sometimes, the courts required Black women to include broader statistics for all women that countered their claims of discrimination; in other cases, the courts limited the admissible data to that dealing with Black women only. In those cases, the low total number of Black women employees typically made statistically valid claims impossible, whereas strong claims could have been made if the plaintiffs were allowed to include data for all women, for all Black people, or both. Later, in her 1991 Stanford Law Review article “Mapping the Margins: Intersectionality, Identity Politics, and Violence Against Women of Color,” Crenshaw powerfully articulates the ways that women of color often experience male violence as a product of intersecting racism and sexism, but are then marginalized from both feminist and antiracist discourse and practice, and denied access to specific legal remedies.

The concept of intersectionality provided the grounds for a long,

slow paradigm shift that is still unfolding in the social sciences, legal scholarship, and in other domains of research and practice. This paradigm shift is also beginning to transform the domain of technology design. What Crenshaw calls ‘single-axis analysis,’ where race or gender are considered as independent constructs, has wide-reaching consequences for A.I.

Universalist design principles and practices erase certain groups of people, specifically those who are intersectionally disadvantaged or multiply-burdened under capitalism, white supremacy, heteropa-

Single-axis (in other words, non-intersectional) algorithmic bias audits are insufficient to ensure algorithmic fairness. While there is rapidly growing interest in algorithmic bias audits, especially in the Fairness, Accountability, and Transparency in Machine Learning (FAT) community, most are single-axis: they look for a biased distribution of error rates only according to a single variable, such as race or gender. This is an important advance, but it is essential that we develop a new norm of intersectional bias audits for machine learning systems.*

triarchy, and settler colonialism. What is more, when technologists do consider inequality in technology design (and most professional design processes do not consider inequality at all), they nearly always employ a single-axis framework. Most design processes today are therefore structured in ways that make it impossible to see, engage with, account for, or attempt to remedy the unequal distribution of benefits and burdens that they reproduce. As Crenshaw notes, feminist or antiracist theory or policy that is not grounded in intersectional understanding of gender and race cannot adequately address the experiences of Black women, or other multiply-burdened people, when it comes to the formulation of policy demands. The same must be true when it comes to our ‘design demands’ for A.I. systems, including technical standards, training data, benchmarks, bias audits, and so on.

Intersectionality is thus an absolutely crucial concept for the development of A.I. Most pragmatically, single-axis (in other words, non-intersectional) algorithmic bias audits are insufficient to ensure algorithmic fairness. While there is rapidly growing interest in algorithmic bias audits, especially in the Fairness, Accountability, and Transparency in Machine Learning (FAT*) community, most are single-axis: they look for a biased distribution of error rates only according to a single variable, such as race or gender. This is an important advance,

but it is essential that we develop a new norm of intersectional bias audits for machine learning systems.

For example, Media Labber Joy Buolamwini and her project the Algorithmic Justice League have produced a growing body of work that demonstrates the ways that machine learning is intersectionally biased. In the project “Gender Shades,” they show how computer vision trained on ‘pale male’ data sets performs best on images of White men, and worst on images of Black women. In order to demonstrate this, Buolamwini first had to create a new benchmark dataset of images of faces, both male and female, with a range of skin tones. This work not only demonstrates that facial recognition systems are biased, it also provides a concrete example of the need to develop intersectional training datasets, how to create intersectional benchmarks, and the importance of intersectional audits for all machine learning systems. The urgency of doing so is directly proportional to the impacts (or potential impacts) of algorithmic decision systems on people’s life-chances.

The matrix of domination

Closely linked to intersectionality, but less widely used today, the matrix of domination is a term developed by Black feminist scholar Patricia Hill Collins to refer to race, class, and gender as interlocking systems of oppression. It is a conceptual model that helps us think about how power, oppression, resistance, privilege, penalties, benefits, and harms are systematically distributed. When she introduces the term, in her book *Black Feminist Thought*, Collins emphasizes race, class, and gender as the three systems that historically have been most important in structuring most Black women’s lives. She notes that additional systems of oppression structure the matrix of domination for other kinds of people. The term, for her, describes a mode of analysis that includes any and all systems of oppression that mutually constitute each other and shape people’s lives.

Collins also notes that:

“People experience and resist oppression on three levels: the level of personal biography; the group or community level of the cultural context created by race, class, and gender; and the systemic level of social institutions. Black feminist thought emphasizes all three levels as sites of domination and as potential sites of resistance.”

We need to explore the ways that A.I. relates to domination and resistance at each of these three levels (personal, community, and institutional). For example, at the personal level, we might explore how interface design affirms or denies a person’s identity through features such as, say, a binary gender dropdown during account profile creation. We might consider how design decisions play out in the impacts they have on different individual’s biographies or life-chances.

At the the community level, we might explore how A.I. systems design fosters certain kinds of communities while suppressing others, through the automated enforcement of community guidelines, rules, and speech norms, instantiated through content moderation algorithms and decision support systems. For example, we know that Facebook’s internal content moderation guidelines explicitly mention

REBOOTING THE CMS MEDIA SPECTACLE

Rebecca Shepardson, Undergraduate Academic Administrator

The Media Spectacle has been a longstanding part of CMS/W, going back to the earliest days of the “pre-/W” program when Chris Pomiecko, the first CMS program administrator and invaluable contributor to the program’s founding, would hold screenings of films and videos created by the MIT community. Tragically, Chris’ life was cut short when he was killed in a car accident in 2005. A fund was then set up to continue the screenings as the Media Spectacle, an annual event and contest held in Chris’s memory. Each year since then, videos of numerous genres from all over MIT have been submitted to the contest, with a grand prize in Chris’s name awarded to the best undergraduate entry. Members of Chris’s family have attended every year and have been enthusiastic supporters of the event.

In recent years, the Spectacle came up against an odd dilemma. With greater access to video making equipment and video editing software (nearly ubiquitous access in the case of cell phones), more people are making vastly more videos than ever before. And yet, hand in hand with the rise of video creation has come an increase in the modes and availability of video consumption. When videos are posted and viewed instantly on youtube and social media, and entire evenings are routinely lost to the “youtube rabbit hole”, a live video screening event becomes less of a draw. The dilemma: How to preserve the spontaneity, surprise, and community from the earliest festivals, where many videos and films were being screened for one’s peers for the first time?

Enter MIT Student Cable, a student-run group whose members first learn, and then provide and teach all aspects of TV and video production to the MIT community. As part of this mission,

they’ve held video hackathons in the past, and were looking to revive the event. Having attended a hackathon screening, and noting that it seemed to have the type of spirit I was hoping to recapture for the Media Spectacle, I reached out to them about running a joint event and was pleased when they enthusiastically agreed. The first joint CMS/W Media Spectacle/Student Cable IHTFP Hackathon was held in April 2018. Teams spent a weekend filming two minute videos, with technical help and equipment provided by MIT Student Cable. The theme for the first hackathon was IHTFP, a well known MIT acronym which could be interpreted any way the teams chose. The hackathon is designed so that the enthusiasm of the weekend channels into the Sunday night screening and prize ceremony. With students working on the videos all weekend, in some cases up to the last minute, the screening is their first chance to share their video with an audience and see what other teams came up with. Based on our first event, a fun evening full of supportive community, humor, creativity and some impressive video work, I am hopeful that the through line to the days of Chris Pomiecko’s screenings has been preserved.

We are pleased to have the continued support of Chris’s sister Cathy and her husband George. A big thank you as well to this year’s judges, Cathy Pomiecko, William Uricchio, and Sandra Rodriguez, as well as MIT Student Cable, especially Cathleen Nalezty, Quentin Smith, Loren Sherman, and Cowboy Lynk. The next hackathon will be on Sunday, Nov 4, with subsequent hackathons continuing to be held each fall semester. We hope you can join us!

Happily, research centers, think tanks, and initiatives that focus on questions of justice, fairness, bias, discrimination, and even decolonization of data, algorithmic decision support systems, and computing systems are now popping up like mushrooms all around the world.

that Black children are not a protected category, while white men are; this inspires very little confidence in Zuckerberg’s congressional testimony that FB is confident that they can deal with hate speech and trolls through the use of A.I. content moderation systems. Nor is Facebook’s position improved by the recent leak of content moderation guidelines that note that ‘White supremacist’ posts should be banned, but that ‘White nationalist’ posts are within free speech bounds.

At the institutional level, we might consider how institutions that support the development of A.I. systems reproduce and/or challenge the matrix of domination in their practices. Institutions include various aspects of the State, especially funding agencies like NSF and DoD; large companies (Google, Microsoft, Apple); venture capital firms, standards-setting bodies (ISO, W3C, NIST), laws (such as the Americans with Disabilities Act), and universities and educational institutions that train computer scientists, developers, and designers. Intersectional theory compels us to consider how these and other institutions are involved in the design of A.I. systems that will shape the distribution of benefits and harms across society. For example, the ability to immigrate to the United States is unequally distributed among different groups of people through a combination of laws passed by the U.S. Congress, software decision systems, executive orders that influence enforcement priorities, and so on. Recently, the Department of Homeland Security (DHS) had an open bid process to develop an automated ‘good immigrant/bad immigrant’ prediction system that would draw from people’s public social media profiles. After extensive pushback from civil liberties and immigrant rights advocates, DHS announced that the system was beyond ‘present day capabilities’.

However, they also announced that they would instead hire 180 positions for people tasked to manually monitor immigrant social media profiles from a list of about 100,000 people. In other words, within the broader immigration system, visa allocation has always been an algorithm, and it is one that has been designed according to the political priorities of power holders. It is an algorithm that has long privileged whiteness, hetero- and cis-normativity, wealth, and higher socioeconomic status.

Finally, Black feminist thought emphasizes the value of situated knowledge over universalist knowledge. In other words, particular insights about the nature of power, oppression, and resistance come from those who occupy a subjugated standpoint, and knowledge developed from any particular standpoint is always partial knowledge.

We have described the nearly overwhelming challenges presented by deeply rooted and interlocking systems of oppression. What paths, then, might lead us out of the matrix of domination?

PART 3: BUILDING A WORLD WHERE MANY WORLDS FIT

Against ontological reduction, towards design for the pluriverse, or, decolonizing A.I.

Itto ends “resisting reduction” on a hopeful note, with a nod towards the many people, organizations, and networks that are already working towards what he calls “a culture of flourishing”. He mentions high school students and MIT Media Lab students; the IEEE working group on the design of A.I. around human wellbeing; the work of Conservation International to support indigenous peoples; and Shinto priests at Ise Shrine. I also believe that, despite the seemingly overwhelming power of the matrix of domination, it is important to center the real world practices of resistance and the construction of alternatives. Accordingly, I’ll end by describing a few more of the exciting emerging organizations and networks that are already working to incorporate intersectional analysis into the design of A.I. systems.

The idea of intentionally building liberatory values into technological systems is not new. For example, the Appropriate Technology movement advocated for local, sustainable approaches to technological development in the countries of the Global South, rather than wholesale adoption of technology developed to serve the needs and interests of those in the wealthiest countries. In the 1980s, Computer Professionals for Social Responsibility emerged during the cold war to advocate that computer scientists resist the incorporation of their work into the nuclear arms race. In the 1990s, the values in design approach, developed by scientists like Batya Friedman, came to the fore. The past year has seen a wave of book-length critiques of the reproduction of race, class, and gender inequality through machine learning, algorithmic decision support systems, and A.I., such as Virginia Eubanks’ Automating Inequality, Cathy O’Neal’s Weapons of Math Destruction, and Safiyah Noble’s Algorithms of Oppression.

There is a growing community of computer scientists focused specifically on challenging algorithmic bias. As we touched on above, beginning in 2014, the FAT* community emerged as a key hub for this strand of work. FAT* has rapidly become the most prominent space for computer scientists to advance research about algorithmic bias: what it means, how to measure it, and how to reduce it. This is such important work, with the caveat noted in the previous section (the current norm of single-axis fairness audits should be replaced by a new norm of intersectional analysis). This will require the development of new, more inclusive training and benchmarking datasets, as we saw with the work of the Algorithmic Justice League.

We need to also consider approaches that are beyond inclusion and fairness, and that center autonomy and sovereignty. For example, how do A.I. systems reproduce colonial ontology and epistemology?

What would A.I. look like if it were designed to support, extend, and amplify indigenous knowledge and/or practices? In this direction, there is a growing set of scholars interested in decolonizing technology, including A.I. For example, Lilly Irani has argued for the development of postcolonial computing; Ramesh Srinivasan has asked us to consider indigenous database ontologies in his book *Whose Global Village*; and anthropologist and development theorist Arturo Escobar has just released a sweeping new book titled *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds*. In it, Escobar draws from decades of work with social movements led by indigenous and Afro-descended peoples in Latin America and the Caribbean to argue for autonomous design. He traces the ways that most design processes today are oriented towards the reproduction of the ‘One World’ ontology. This means that technology is used to extend capitalist patriarchal modernity, the aims of the market and/or the state, and to erase indigenous ways of being, knowing, and doing (ontologies, epistemologies, practices, and life-worlds). Escobar argues for a decolonized approach to design that focuses on collaborative and place-based practices, and that acknowledges the interdependence of all people, beings, and the earth. He insists on attention to what he calls the ontological dimension of design: all design reproduces certain ways of being, knowing, and doing. He’s interested in the Zapatista concept of creating “a world where many worlds fit,” rather than the ‘one-world’ project of neoliberal globalization.

Happily, research centers, think tanks, and initiatives that focus on questions of justice, fairness, bias, discrimination, and even decolonization of data, algorithmic decision support systems, and computing systems are now popping up like mushrooms all around the world. These include Data & Society, the A.I. Now Institute, and the Digital Equity Lab in New York City; the new Data Justice Lab in Cardiff, and the Public Data Lab. Coding Rights, led by hacker, lawyer, and feminist Joana Varon, works across Latin America to make complex issues around data and human rights much more accessible for broader publics, engage in policy debates, and help produce consent culture for the digital environment.

They do this through projects like Chupadatos (‘the data sucker’). Others groups include Fair Algorithms, the Data Active group, the Center for Civic Media at MIT; the Digital Justice Lab, recently launched by Nasma Ahmed in Toronto; Building Consentful Tech, by the design studio And Also Too in Toronto; the Our Data Bodies project, by Seeta Ganghadaran and Virginia Eubanks, and the Fem-TechNet network.

There are a growing number of conferences and convenings dedicated to related themes; besides FAT*, the past year has seen the Data4BlackLives conference, the 2018 Data Justice Conference in Cardiff, and the A.I. and Inclusion conference in Rio de Janeiro, organized by the Berkman-Klein Center for Internet & Society, ITS Rio, and the Network of Centers, as well as the third Design Justice Track at the Allied Media Conference in Detroit.

To end, it is worth quoting at length from the Design Justice Network Principles, first developed by a group of 30 designers, artists, technologists, and community organizers at the Allied Media Conference in 2015:

DESIGN JUSTICE NETWORK PRINCIPLES

Design mediates so much of our realities and has tremendous impact on our lives, yet very few of us participate in design processes. In particular, the people who are most adversely affected by design decisions — about visual culture, new technologies, the planning of our communities, or the structure of our political and economic systems — tend to have the least influence on those decisions and how they are made.

Design justice rethinks design processes, centers people who are normally marginalized by design, and uses collaborative, creative practices to address the deepest challenges our communities face.

1. We use design to sustain, heal, and empower our communities, as well as to seek liberation from exploitative and oppressive systems.
2. We center the voices of those who are directly impacted by the outcomes of the design process.
3. We prioritize design’s impact on the community over the intentions of the designer.
4. We view change as emergent from an accountable, accessible, and collaborative process, rather than as a point at the end of a process.
5. We see the role of the designer as a facilitator rather than an expert.
6. We believe that everyone is an expert based on their own lived experience, and that we all have unique and brilliant contributions to bring to a design process.
7. We share design knowledge and tools with our communities.
8. We work towards sustainable, community-led and -controlled outcomes.
9. We work towards non-exploitative solutions that reconnect us to the earth and to each other.
10. Before seeking new design solutions, we look for what is already working at the community level. We honor and uplift traditional, indigenous, and local knowledge and practices.

In 1994, the Zapatistas appropriated the then-nascent ‘Net to circulate a clarion call for “One No, Many Yeses.” Fundamentally, it was a call to resist reduction. It is time to heed their words in our approach to the design of A.I. We need to listen to the voices of Indigenous peoples, Black people, Queer and Trans* folks, women and femmes, people with disabilities, immigrants and refugees, and all of those who are historically and currently the most marginalized, targeted, erased, under the matrix of domination. This is essential if we want to make space for many worlds, many ways of being, knowing, and doing, in our visions of A.I. and of planetary systems transformation. ●

SASHA COSTANZA-CHOCK ON NEW #MORETHANCODE REPORT

Peter Dizikes
MIT News Office



Sasha Costanza-Chock. Photo by Allegra Boverman.

Not every technology platform or tool you use, or website you visit, comes straight from a startup or Silicon Valley. Many are developed by nonprofits, government agencies, or advocacy groups practicing community technology, technology for social justice, or “public interest technology.” What can we learn from these community-engaged technology practitioners? How can organizations that work for equity achieve the diversity they often advocate for in society?

Sasha Costanza-Chock, an associate professor in Comparative Media Studies/Writing, is the lead author of a new report, titled “#MoreThanCode: Practitioners reimagine the landscape of technology for justice and equity,” which delves into these issues. The report distills 109 interviews, 11 focus groups, and data from thousands of organizations into five high-level recommendations for those who want to use technology for the public good. (The report was funded by NetGain, the Ford Foundation, Mozilla, Code for America, and OTL.) The report can be accessed at <http://morethancode.cc>.

Q: Who are the practitioners in this tech ecosystem?

A: “#MoreThanCode” is a report about people working to use technology for social good and for social justice — the space the report’s funders call “public interest technology.” There’s a very wide range of roles for people who use technology to advance the public interest,

and it’s not only software developers who are active.

One of our key recommendations is that when funders and organizations — be they city governments or nonprofits or for-profit companies — are putting together teams, they need to think broadly about who is on that team. We found that a good team to develop technology that’s going to advance social justice or the public interest is going to include software developers, graphic designers, researchers, and domain [subject] experts. Domain experts might have formal expertise, but the most important team member is someone with lived experience of the particular condition that technology is supposed to address.

Q: On that note, can you say a little about the current state of social diversity in this sector?

A: Certainly. One of our key goals in the report was to produce baseline knowledge about who’s working in public interest technology. And unfortunately, in terms of hard data, the main finding is that we don’t have it, because many organizations in the space have not published diversity and inclusivity data about who their staff are, who their volunteers are.

And so one recommendation in the report is that everybody who says they’re doing public interest technology, or using technology for good, should be gathering data about, at the very least, race and gender, and publicly releasing it. Gathering and releasing diversity data, and setting time-bound, public targets for diversity and inclusion goals, are two main things that we know work in organizations, from the evidence-based literature. Good intentions aren’t enough.

Although we weren’t able to gather that kind of sector-wide diversity data, we did interview 109 people and conduct focus groups with 79 more, and asked them about their experiences with racism, sexism, transphobia, ableism, and other common forms of systematic marginalization people experience. About half of the people we talked to for the report said they had experiences like that.

The leading recommendation at the end of the report is summed up in a slogan from the disability justice movement, which is, “Nothing about us, without us.” The idea is that when you’re going to develop a technology to help a community, you have to include members of that community from the beginning of your process...and ideally in the governance of the project when it’s deployed.

Q: The report also suggests people should not always look for “silver bullets” or instant answers from technology alone. Why is that, and what are some of the other recommendations from the report?

A: I’m not going to say it’s never about finding a new [technological] solution, but over and over again, the people we interviewed said the projects that were most successful were deployments of resilient, proven technology, rather than some super-exciting new app that’s suddenly supposed to solve everything.

One recommendation is that when organizations set up tech teams, you want someone from the community on the design team, not just

at a moment of consultation. That's a pretty important takeaway. A lot of people told us it was important to go further than just doing initial consultations with a community — having people on the design team from beginning to end is a best practice we recommend.

Some people talked about creating tech clinics, modeled after legal clinics in education. That would be something a place like MIT could think about. Law schools often require students to spend a certain number of hours providing legal services pro bono to people in different domains who otherwise can't afford lawyers. It would be interesting to consider whether there could be a [similar] tech clinic concept.

Our final recommendation was about recognizing organizational models beyond traditional startups, government offices, or 501c3 non-profits — for example, consider tech cooperatives, or ad hoc networks that emerge around a crisis moment. These are hard for investors or foundations to fund: Whom do you fund? And yet a lot of really important technology projects are informal. In the wake of Hurricane Maria in Puerto Rico, there were hundreds of developers, techies, and community organizers doing everything they could, ad hoc, to get communications infrastructure back up.

People should develop strategies for supporting those kinds of networks when they do spring up. For funders, that may mean setting up a crisis response fund with a mechanism to rapidly dispense smaller amounts of funds. And members of the MIT community who are creating new companies to bring “tech for good” innovations to market should consider worker-owned cooperatives, platform co-ops, and other models that internally mirror the kind of world they'd like to build. ●

DISPATCHES FROM PLANET 3

MARCIA BARTUSIAK ILLUMINATES OVERLOOKED BREAKTHROUGHS AND THE PEOPLE WHO MADE THEM

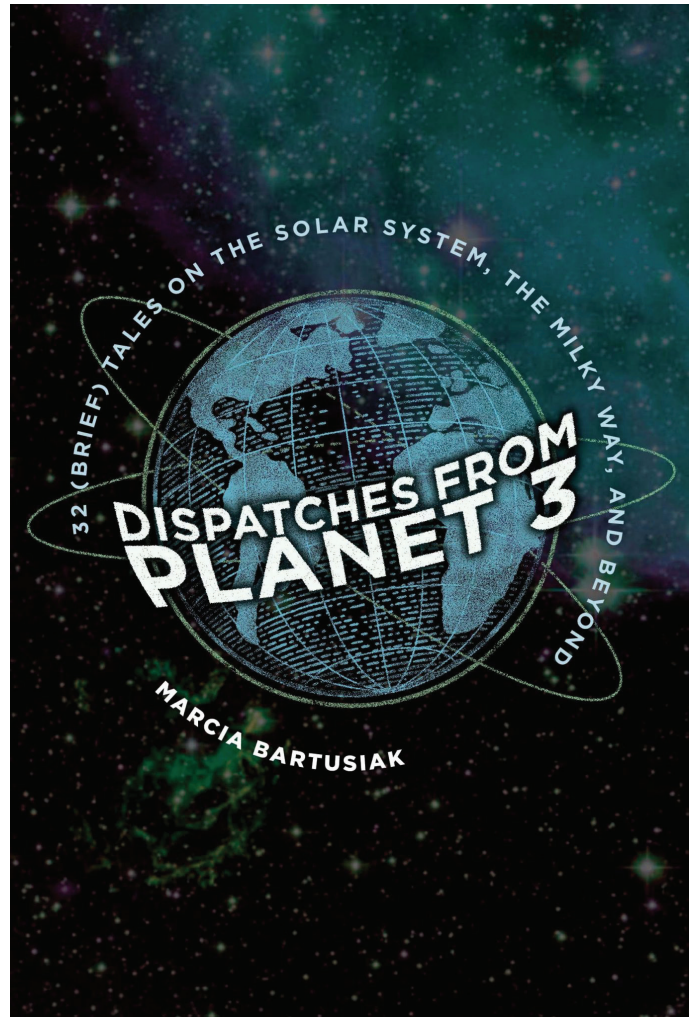
Peter Dizikes
MIT News Office

Here's quick rule of thumb about the universe: Everything old is new again.

Those materials being used when new stars or planets form are just recycled cosmic matter, after all. But also, even our latest scientific discoveries may not be as new as they seem.

That's one insight from Marcia Bartusiak's new book, *Dispatches from Planet 3*, published by Yale University Press, a tour of major discoveries in astronomy and astrophysics that digs into the history behind these breakthroughs.

“No discovery comes out of the blue,” says Bartusiak, professor



of the practice in MIT's Graduate Program in Science Writing. “Sometimes it takes decades of preparation for [discoveries] to be built, one brick at a time.”

The book, drawn from her columns in *Natural History*, underscores that point by highlighting unheralded scientists whose work influenced later discoveries.

Moreover, as Bartusiak observes in the book, recent scientific debates often echo older arguments. Take the kerfuffle last decade about whether or not Pluto should be regarded as a proper planet in our solar system. As Bartusiak recounts in the book, the same thing happened multiple times in the 19th century, when objects called Ceres, Vesta, and Juno first gained and then lost membership in the club of planets.

“Ceres in the 19th century was a certified planet, along with Vesta and Juno, the big asteroids, until they got demoted into the general asteroid belt,” Bartusiak says. “Then the same thing happened again, and everyone said, ‘Poor Pluto, it’s not a planet any more.’ Well, I’m sure in the 19th century there were people going ‘Poor Ceres, it’s not a planet.’ We’ll get over it.”

(Demoting Pluto, by the way, is a judgment Bartusiak is comfort-

able with: “They made the right decision. Pluto is a dwarf planet. It’s part of the Kuiper Belt. I’m sure I’ll get a lot of people mad with me, [but] it makes sense to have Pluto in that group, rather than...with the big terrestrial planets and the gas giants.”)

One astronomer who made a crucial Pluto-related discovery was Jane X. Luu, who helped locate asteroids orbiting the sun from even farther away. Luu is just one of many women in *Dispatches from Planet 3* — although, Bartusiak says, that was not by design, but simply a consequence of hunting for the origins of important advances.

“I did not have an agenda for this book,” Bartusiak says. “I have always been the type of writer that wanted to follow my nose on what the most interesting findings, discoveries, and theories were, without worrying about who was doing them.”

But as it happens, many stories about the development of scientific knowledge involve accomplished female scientists who did not immediately become household names.

Consider the astronomer Cecilia Payne-Gaposchkin, who in the 1920s, Bartusiak notes, “first knew that hydrogen is the major element of the universe. A major discovery! This is the fuel for stars. It was central to astronomical studies. And yet, the greatest astronomer of the time, Henry Norris Russell, made her take [the idea] out of her thesis before they would accept it at Harvard.”

Bartusiak’s book also recounts the career of Beatrice Tinsley, an astrophysicist who in the 1970s developed important work about the ways galaxies change over time, before she died in her early 40s.

“Who really started thinking about galaxy evolution?” Bartusiak asks. “Beatrice Tinsley, ignored when she first started doing this, [produced] one of the most accomplished Ph.D. theses in astronomical history. She was the first to really take it seriously.”

The notion that galaxies evolve, Bartusiak’s book reminds us, is a relatively recent concept, running counter to ages of conventional wisdom.

“People thought of the universe as being serene [and that] every galaxy was like the Milky Way,” Bartusiak says. “And that was based on what they could see.” Deep in the postwar era, our empirical knowledge expanded, and so did our conception of galactic-scale activity.

In fairness, the Milky Way is pretty placid at the moment.

“It will get active again when we collide with Andromeda, four billion years from now,” Bartusiak says. “We’re lucky we’re not in the galactic center or in a very active star cluster. You have stars blowing up, and it probably would be hard for life to start if you were in an area where X-rays were raining down on you, or if a supernova was going off nearby. We’re off in a little spur in a very quiet part of the Milky Way galaxy, which has enabled life on Earth here to evolve and flourish without a cosmic incident raining havoc down upon us.”

Bartusiak closes the book with chapters on black holes, the idea of the multiverse, and our problems in conceptualizing what it means to think that the universe had a beginning.

“We think that black holes and gravitational waves are strange, but there may stranger things to come,” Bartusiak says. “As I say in a chapter with [Harvard theoretical physicist] Lisa Randall, experimenters and theorists used to work in tandem...and now the theorists have

moved so far from observations that it’s a little frightening. There’s a need for new instrumentation, the new James Webb telescopes, the new particle accelerators.”

Which ultimately brings Bartusiak to another part of science that definitely has precedent: the need for funding to support research.

“The bigger the instrument, the further out you can see, or the further down into spacetime you can see, so I want people to realize that if you want these stories to continue, you’re going to need a further investment,” Bartusiak says. “But that’s what makes us a civilization. That we can take at least some of our wealth and use it to expand our knowledge about where we live. And that includes the universe, not just the Earth.” ●

CONTEMPLATING THE EYES IN THE SKY

**LISA PARKS EXAMINES THE WAY
SATELLITES AND OTHER AERIAL
TECHNOLOGIES HAVE CHANGED
SOCIETY.**

*Peter Dizikes
MIT News Office*



Lisa Parks. Photo by Jake Belcher.

Satellites have changed the way we experience the world, by beaming back images from around the globe and letting us explore the planet

PARKS RECEIVES “GENIUS GRANT”

\$625,000 MACARTHUR FELLOWSHIP WILL HELP SUPPORT THE GLOBAL MEDIA TECHNOLOGIES AND CULTURES LAB

The prominent award, colloquially known as the “genius grant,” comes in the form of a five-year \$625,000 fellowship, which is unrestricted, meaning recipients can use the funding any way they wish.

Parks has written in close detail about the ways new technology has shaped our conception of things as diverse as war zones and the idea of a “global village.” As Parks has said, her work aims to get people “to think of the satellite not only as this technology that’s floating around out there in orbit, but as a machine that plays a structuring role in our everyday lives.” Parks is the author of the influential 2005 book, *Cultures in Orbit*, and has co-edited five books of essays on technology and culture, including the 2017 volume *Life in the Age of Drone Warfare*.

Parks also has a keen interest in technology and economic inequality, and her research has also examined topics such as the video content accessible to Aboriginal Australians, who, starting in the 1980s, attempted to gain greater control of satellite television programming in rural Australia.

As the principal investigator for MIT’s Global Media Technologies and Cultures Lab, Parks and MIT graduate students in the lab conduct onsite research about media usage in a range of places, including rural Africa.

Parks received her Ph.D. at the University of Wisconsin before joining the faculty at the University of California at Santa Barbara, and then moving to MIT.

— Peter Dizikes, MIT News Office

through online maps and other visuals. Such tools are so familiar today we often take them for granted.

Lisa Parks does not. She is an expert on satellites and their cultural effects, among other forms of aerial technology. Her work analyzes how technology informs the content of our culture, from images of war zones to our idea of a “global village.”

“I really wanted people to think of the satellite not only as this technology that’s floating around out there in orbit, but as a machine that plays a structuring role in our everyday lives,” Parks says.

As such, Parks thinks we often need to think more crisply about both the power and limitations of the technology. Satellite images helped reveal the presence of mass graves following the Srebrenica massacre in the 1990s Balkans war, for instance. But they became a form of “proof” only after careful follow-up reporting by journalists and other investigators who reconstructed what had happened. Satellites often offer hints about life on the ground, but not omniscience.

“Since satellite images are so abstract and remote, they necessitate closer scrutiny, re-viewing, careful description, and interpretation in ways that other images of war do not,” Parks writes in her 2005 book “*Cultures in Orbit*.”

Alternately, satellite images can open up our world — or be exclusionary. The landmark 1967 BBC show “Our World,” one of the first broadcasts to feature live global satellite video links, was touted as a global celebration. But as Parks writes, it reinforced distinctions between regions, by emphasizing “the modernity, permanence, and civilizational processes of industrial nations,” and thus “undermining the utopian assumption that satellites inevitably turned the world into a harmonic ‘global village.’”

For her distinctive scholarship, Parks was hired by MIT in 2016. She studies a range of media technologies — from the content of television to drone imagery — and has co-edited five books of essays on such topics, including the 2017 volume “Life in the Age of Drone Warfare.” Parks is also the principal investigator for MIT’s Global Media Technologies and Cultures Lab, which conducts on-site research about media usage in a range of circumstances.

“Technology and culture is what I’m interested in,” Parks says.

BIG SKY, THEN AND NOW

Parks grew up in Southern California and Montana. Her father was a civil engineer and her mother was a social worker — a combination, Parks suggests, that may have helped shape her interests in the social effects of technology.

As an undergraduate at the University of Montana, Parks received her B.A. in political science and history. She initially expected to become a lawyer but then reconsidered her career path.

“I didn’t want to be in an office all of the time,” Parks says. So she went back to the classroom, at the University of Wisconsin at Madison, where she received her Ph.D. in media studies. It was there that Parks’ attention really turned to the skies and the technologies orbiting in them. She wrote a research paper on satellites that turned into both her dissertation and first book. Parks then took a job at the University of California at Santa Barbara, where she taught for over a

decade before joining MIT.

“I loved my job there, I loved working in the U.C. system, and I had excellent colleagues,” says Parks.

Still, she adds, she was fascinated by the opportunities MIT offers, including its abundant interdisciplinary projects that pull together researchers from multiple fields.

“MIT seems to really value those kinds of relationships,” Parks says.

In the classroom, Parks teaches an undergraduate course on current debates in media, which grapples with topics ranging from surveillance to net neutrality and media conglomerations. For graduate students, she has been teaching a foundational media theory course.

“If you’re an MIT student and you want to come out of this place having thought about some of the policy implications relating to the media in this current environment, our classes equip you to think historically and critically about media issues,” Parks says.

TECHNOLOGY...AND JUSTICE FOR ALL

One other issue strongly motivates Parks’ scholarship: the idea that technology is unevenly distributed around the world, with important implications for inequality.

“Most people in the world live in relatively disenfranchised or underprivileged conditions,” Parks says. “If we shift the question about designing technologies so they serve a broader array of people’s interests, and designs are interwoven with concerns about equity, justice, and other democratic principles, don’t those technologies start to look different?”

To this end, MIT’s Global Media Technologies and Cultures Lab, under Parks’ direction, studies topics such as media infrastructure, to see how video is distributed in places such as rural Zambia. Parks’ research has also examined topics such as the video content accessible to Aboriginal Australians, who, starting in the 1980s, attempted to gain greater control of, and autonomy over, the satellite television programming in rural Australia.

Parks’ research takes place in a variety of social and economic orbits: In March, you could have found her and a research assistant, Matt Graydon, at the Satellite 2018 convention in Washington, interviewing CEOs and industry leaders for a new study of satellite-based internet services.

In some places around the globe, the effects of aerial technology are more immediate. In the volume on drones, Parks writes that these tools create a “vertical mediation” between ground and sky — that when “drones are operating in an area over time, above a certain region, they change the status of sites and motions on the ground.” She elaborates on this in her new book, out this year, “Rethinking Media Coverage: Vertical Mediation and the War on Terror.”

As diverse as these topics may seem at first, Parks’ scholarly output is intended to expore more deeply the connection between aerial and orbital technologies and life on the ground, even if it is not on the mental radar for most of us.

“We need to be studying these objects in orbit above, and think about orbital real estate as something that’s relevant to life on Earth,” Parks says. ●



Seth Mnookin. Photo by Bryce Vickmark.

SETH MNOOKIN BRINGS BESTSELLING AUTHOR’S TOUCH TO TEACHING SCIENCE JOURNALISM

SCIENCE “PUSHES ME TO CONSTANTLY GO OUT OF MY COMFORT ZONE,” SAYS DIRECTOR OF MIT’S SCIENCE WRITING PROGRAM.

*David L. Chandler
MIT News Office*

As an undergraduate, Seth Mnookin went through five or six different majors before finally settling on history and science — an apt combination for someone who would end up heading MIT’s Graduate Program in Science Writing, as he does now. But there was a long road in between these endpoints.

“I didn’t think I had the skills to be a bench scientist,” Mnookin recalls, “but science was something that fascinated me.” At the same time, he says, “I knew since high school that I wanted to be a journalist.”

At Newton North High School in Newton, Massachusetts, he

worked on the school paper, where he says he learned more from the paper's advisor, Helen Smith, than he has "from any other person." Smith imparted to her students the importance of attention to detail, Mnookin recalls, by "treating our paper as if it was *The New York Times*....She really laid the foundations [and showed] that being a reporter gave you a way to go anywhere, talk to anyone."

Mnookin pursued a dual history and science major as an undergraduate at Harvard University, which, he says, "allowed me to focus on science through a humanities lens." That combination worked well for him, leading to a career as a writer for prestigious publications and eventually to penning award-winning books including "The Panic Virus," about the erroneous belief that vaccines contributed to a rise in autism cases.

It wasn't all science along the way, though. "I didn't do anything with my degree for about fifteen years," Mnookin says. Instead, he covered very different topics, including the amazing rise of the Red Sox to win their first World Series in nearly a century, in his book *Feeding the Monster: How Money, Smarts, and Nerve Took a Team to the Top*. Earlier, he wrote about journalism, in his 2004 book *Hard News: The Scandals at The New York Times and Their Meaning for American Media*, which was named by *The Washington Post* as a best book of the year.

Mnookin started his journalism career as a freelance rock and jazz critic before joining *The Palm Beach Post* in Florida as a crime and metro reporter in 1997. In 1999 he moved to New York City, where he covered city hall for *The Forward*, a Jewish weekly newspaper. The following year, he was hired by *Brill's Content* to cover the 2000 presidential campaign.

He describes that campaign as a great introduction to political coverage, which found him riding on press planes with people who had been covering politics since John F. Kennedy's campaign and later the Watergate scandal. "It was an incredible experience," he recalls. Among other things, "I got to interview [Bill] Clinton in the Oval Office."

After *Brill's Content* closed shortly after Sept. 11, Mnookin was hired as a senior writer at *Newsweek*, where he covered the media.

Soon, a series of scandals rocked the journalism world, involving plagiarism and falsified interviews with people who turned out not to exist. Jayson Blair at *The New York Times*, for example, was found to have invented sources for numerous stories. "I had been skeptical" about the leadership at the Times in those days, he says, and that led to his first book, *Hard News*, which was an account of those events.

After that project, as he was wondering about what to write as a second book project, "a fortuitous confluence of events" led Mnookin to follow the progress of a new young general manager: local boy Theo Epstein, who had taken over at the Red Sox, vowing that "this is the year they're going to win" after having failed to win a World Series since 1918.

"I spent a year living with the team," Mnookin says, a period that included the amazing come-from-behind win of the 2004 series. The book came out in the summer of 2006 and made the Times best-seller list in its first week. The fact that the book did so well, Mnookin says, had "less to do with me, and more about the fact that people like to

read about winning sports teams." The success of that book, he says, "gave me more freedom to choose what's next."

He had previously interviewed for science writing positions, including at *The Wall Street Journal*, and "I knew that was something I wanted to get back into." He started looking into what was then heating up as an intense controversy: the now thoroughly debunked notion that vaccines were contributing to a rise in autism rates. That became the subject of his next book, *The Panic Virus*, which he says took him longer to write and required more discipline than anything he had done before.

He says the reason he finds writing about science so attractive, compared to, say, music, which he also loves to write about, is that "science was a difficult type of challenge. It pushes me to constantly go out of my comfort zone. You're always learning about new things, and I think that's the coolest part about being a journalist."

Mnookin joined MIT in 2011, first as a lecturer in the Graduate Program in Science Writing. The following year, he was hired as an assistant professor and became the program's co-director. In 2016 he became the director of that program and the following year was promoted to professor of science writing in the Comparative Media Studies/Writing program. "What we do here is a little bit different" than at many other journalism schools, he says, stressing the importance of providing students with real-world journalistic experiences and giving them the hands-on knowledge that he says is indispensable in today's journalism world.

These days, with newspapers declining and fewer entry-level jobs in the business, he says, "it's much more difficult to just pop in and learn on the job — to understand what the null principle is, or to get a study and immediately focus on what the shortcomings are, [or to ask.] 'is the sample size sufficient for the conclusions the authors claim?' That kind of stuff can be pretty difficult to learn on the job."

Since he's been the director, the science writing program has added some new modules to its curriculum every year, he says, including one on podcasting and another on data journalism. "We want to constantly update ourselves," including finding more ways to help fund students' learning and find them employment opportunities.

Mnookin has also been collaborating with Deborah Blum, director of MIT's Knight Science Journalism Fellowship Program, to find ways for the two programs to work together. Each year, four students from the graduate program work as editorial interns for *Undark*, a magazine Blum runs out of the Knight program. The students also write profiles of all Knight fellows each year as a way for the two groups to get to know each other.

In addition to his academic work, Mnookin has met with MIT students struggling with drug-use issues, and has served as a resource for Student Support Services. He's motivated by personal experiences with drug-use disorders, which stretched from high school through his mid-twenties. "I almost died as a result of heroin dependency," he says.

Outside of MIT, Mnookin spends his free time with his wife Sara and their two children, Max and Eliza. They love music and go to a lot of concerts together, says Mnookin, who also enjoys playing the mandolin. ●

FRIGHT MAKES RIGHT

EUGENIE BRINKEMA STUDIES THE AESTHETICS AND ETHICS OF HORROR FILMS.

Peter Dizikes
MIT News Office



Eugenie Brinkema, an associate professor of literature, is an expert on the formal properties of films: their use of light, color, sound, time, and other structural elements that convey sensations and ideas.

Photo by Bryce Vickmark

When a horror film reaches its most dramatic scenes, most people tense up. Eugenie Brinkema just keeps taking notes.

Brinkema, an associate professor of literature, is an expert on the formal properties of films: their use of light, color, sound, time, and other structural elements that convey sensations and ideas. In particular, she studies the techniques that make horror films and intense thrillers so gripping to so many viewers — while also grappling with the moral issues that arise in many of these movies.

“I am really interested in the ethics and the aesthetics of extremity,” Brinkema says.

After all, she says, in films depicting “wartime, or trauma, or being trapped in a room when it’s either you or me [as a victim], which is the premise of so many horror films, that moment of extremity brings to the surface how ethics work.”

Such situations, she adds, are also when “interesting aesthetic solutions have to be devised.”

So, for instance, in the famous shower scene in Alfred Hitchcock’s

Psycho, it may be the apparent tear rolling down Janet Leigh’s face that moves you. More likely, as Brinkema contends in her first book, *The Form of the Affects*, it is Hitchcock’s use of bright light that affects your emotions. Alternately, in a lowbrow horror film, the gory visuals may not grip your nervous system as much as the subtle use of dissonant sound. Either way, it may be the technical construction of a scene that most affects viewers.

So while Brinkema teaches literature to undergraduates and especially loves the writing of the existentialists, she most frequently rolls up her sleeves and decodes all manner of cinema — from *Psycho* and *The Shining* to *The Texas Chainsaw Massacre* and a recent French horror film called *Rubber* — including many films that lack critical respect.

“If it’s not under the radar, I often find it interminably boring,” Brinkema says. “The kind of cinema that wins at the Oscars...is the kind of body of work I rarely teach.”

“I GREW UP IN THE COURTROOM”

Brinkema is from Virginia, where her mother is a federal judge and her father worked in the judiciary. As she tells it, her long-term exposure to heavy-duty legal cases, and the extreme moments of human experience they represented, had a formative effect on her interests.

“I grew up in the courtroom,” Brinkema says. “I was always really, really interested in violence, justice, and problems of ethics.”

She adds: “If I were not a film theorist, I would be a public defender.”

As an undergraduate, Brinkema attended Yale University, where, she says, “I assumed I was going to be a philosophy major and I assumed I was going to be a lawyer.” That changed, partly due to a film class taught by Professor Brigitte Peucker, which showed Brinkema how she might blend her own seemingly disparate interests in film and ethics.

As a graduate student, Brinkema studied psychoanalysis at the University of Buffalo for two years before moving to Brown University, where in 2010 she received her Ph.D. in modern culture and media. Brinkema joined the MIT faculty as an assistant professor; for her research and teaching, she was awarded tenure at the Institute last year.

Brinkema’s research includes *The Form of the Affects*, published in 2014, which won honorable mention in the Modern Language Association First Book Prize; she has also published many articles. Brinkema is currently working on a new book, *Algebras of Sensation*, that further develops her work about the formal cinematic properties of both horror and love.

For her classroom efforts, Brinkema was awarded the James A. and Ruth Levitan Award for Excellence in Teaching in MIT’s School for Humanities, Arts, and Social Sciences (SHASS). In addition to teaching undergraduates in SHASS, Brinkema has helped advise students in the History, Theory, and Criticism of Architecture and Art program in the School of Architecture and Planning. And in another interdisciplinary venture, Brinkema wrote an article for the catalogue accompanying the contemporary art show “An Inventory of Shimmers,” which ran in 2017 at MIT’s List Visual Arts Center. She also helped organize a symposium about the show.

ONE SHINING MOMENT

Given that Brinkema spends a relatively large portion of her time watching horror films and other kinds of challenging material, it raises a question: How does she manage to stomach what others find so difficult to watch? Brinkema says that's an inquiry she often hears.

"I get versions of it from other academics and from my students," she acknowledges. The answer, it turns out, involves being coolly analytical about the material. Horror films are, after all, fictions designed to elicit specific audience reactions, and focusing on the techniques they use produces a certain detachment.

"If you really watch for form, what you also start to see is that bodies are also forms," says Brinkema. "A body in a horror film is also a problem of space or color. I'm not saying it [watching film this way] gets rid of violence, but it redefines it, so you can think with it, instead of only being horrified."

To take a relatively tame example, Brinkema says, ask yourself, "How does the construction of architecture in 'The Shining' produce this experience of vertiginous disorientation and nausea and horror and terror? We could say, 'Oh, I thought the horror was about the 'Heeeeere's Johnny' moment in the bathroom. But now, I think the horror [stems from] the problem of scale and perspective.'"

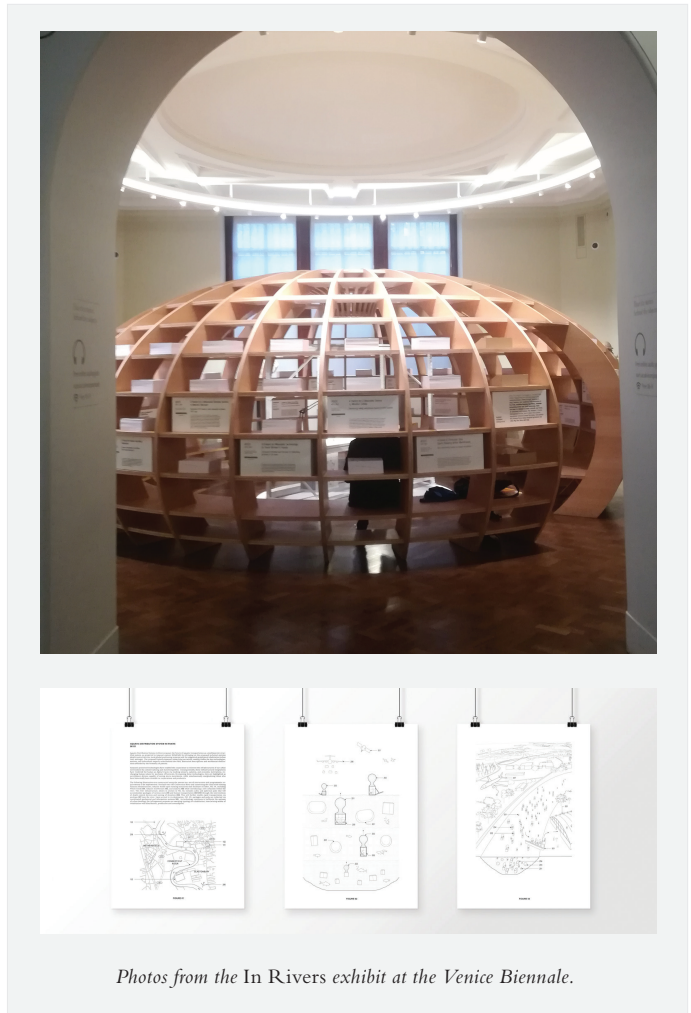
To be sure, it probably does help to have a sturdy stomach before enrolling in one of Brinkema's film classes; she does not let students skip class sessions because they're wary of the material. But as in any other course, Brinkema notes, she gives students a chance to explore the world: "I just encourage students to keep thinking, stay curious, and keep asking questions." ●

ARCHITECTURAL EXHIBIT DIGS INTO AMAZON'S PATENTS

AT THE VENICE BIENNALE, STUDENTS DISPLAY "INFRINGEMENT" WORK

Calvin Zhong, S.B., Architecture and CMS, '18

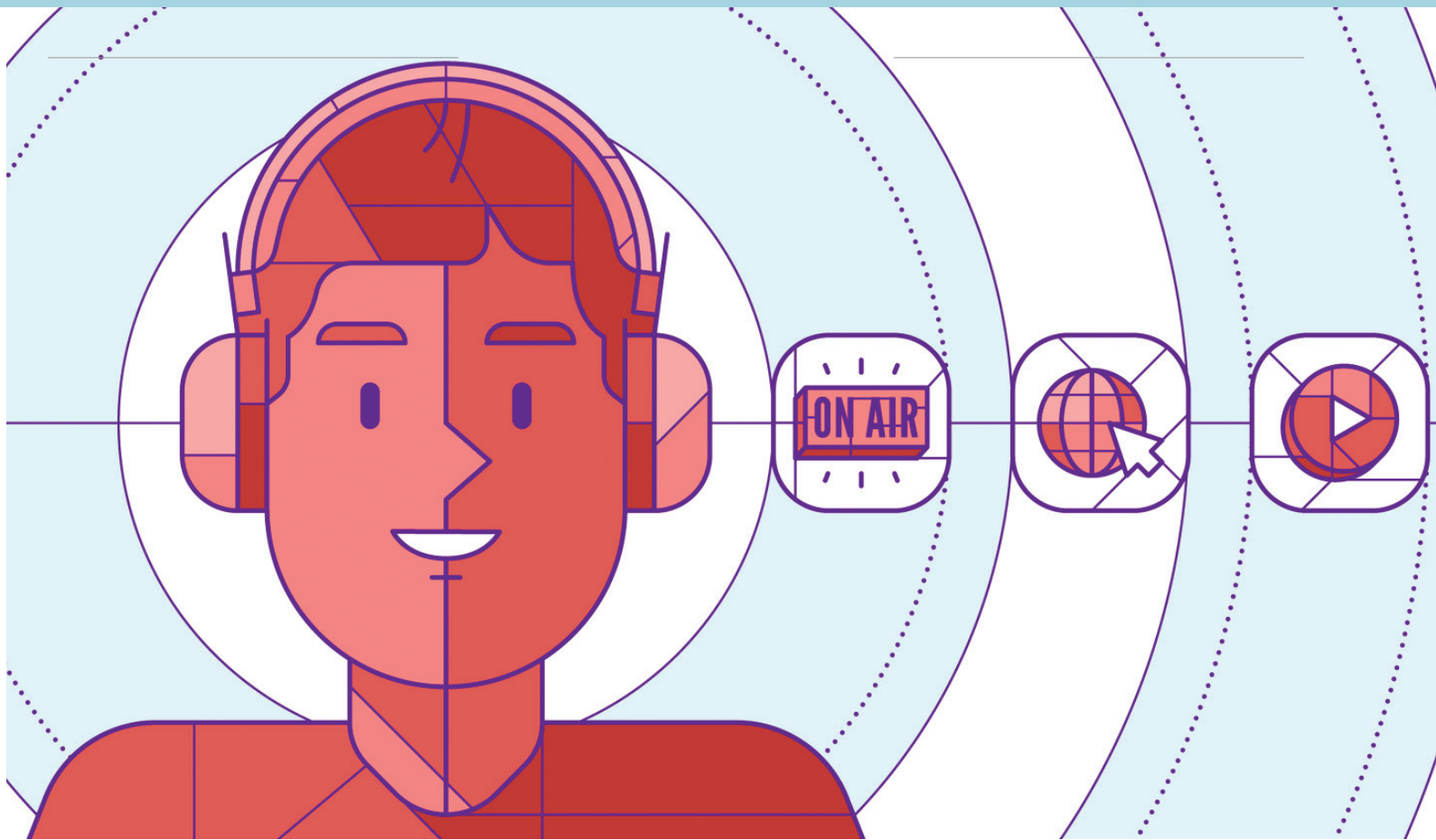
By establishing how technology and computation in architecture extends beyond just the tools and programs utilized to design and build and even how computation is embedded deeply within contemporary architectural spaces, architecture's newfound role in mediating between the collided physical and digital worlds becomes increasingly relevant. In the form of smart devices, homes, and cities, the spaces we inhabit are both encapsulating and being encapsulated by data, technology, and information. Utilizing the historic overviews of the developments between the two fields, and considering a new frontier for architecture, the typology of platform architectures, architecture



Photos from the *In Rivers* exhibit at the Venice Biennale.

can be considered as a mediator between the public and some of the commercial agents that seek to capitalize on recent technological advancements. *Aquatic Distribution System in Rivers* examines specifically Amazon Technologies, Inc. as a platform that is asserting considerable control over physical infrastructures.

The *In Rivers* team (Kyle Branchesi, SMArchS '19; Darle Shinsato, SMArchS '19, Calvin Zhong, S.B. Architecture and Comparative Media Studies, '18) exposes the future of aquatic transportation as a multilayered, stratified system, as projected in Amazon's patents by infringing on the proposed technical systems (depth control devices, local/global positioning systems) and the suggested geophysical habitation (urban river settings). The proposal exploits Amazon's underlying narratives, making visible the key technologies, motives, and unforeseen impacts veiled behind the filed, abstracted descriptions and mechanical illustrations afforded by the formality of patents. Using architecture as a lens to construct a narrative pertaining to the future of urban development controlled by a tech company, we relate the new ways in which our retail and commercial spaces and the architectural infrastructures are developed to the way code, technology, and data have been developed. ●



ON-AIR, ONLINE, AND ON DEMAND: THE CHANGING FACE OF PUBLIC RADIO MEMBERSHIP

Anika Gupta, S.M., CMS, '16

When Lauren Bracey Scheidt, senior product manager for listener journey at National Public Radio, talks to online radio listeners, some of them express surprise at the idea of a terrestrial radio station (with knobs and equipment and all!). She said, “One of the most surprising pieces of info we get from some digital-only listeners is: ‘Wait...you have a radio station?’”

And yet, as many as 91% of Americans listen to terrestrial radio in any given week, according to 2016 Nielsen Media Research data cited in a Pew Research Center report. Some of these listeners go on to contribute money (and in some cases, time and energy) that helps their local stations survive. Nearly 50 years of history means that public broadcasters have become some of the most experienced membership practitioners in journalism. And yet, as my fellow researcher

Corinne Osnos found in studying how a sample of 50 stations present membership to prospective supporters, most stations ask for money first and could be more thoughtful in other ways that members might participate.

I took a qualitative approach, interviewing membership and content teams at nine organizations across the United States. I wanted to know: How have public media organizations built and sustained these strong giving relationships with their listeners? What are the day-to-day best practices as well as the philosophical roots of their membership model? And how is the idea of membership – and the ways in which public broadcasters solicit it – evolving as more listeners migrate to on-demand and online listening?

In the first part of this post, we examine how public media organizations currently host membership in order to draw lessons for other media organizations.

Like other types of news sites we’ve examined, American public media organizations are diverse in how they staff membership, the news and entertainment content they produce, and the audience needs they serve. My research focused on the United States, where public media organizations often get more funding from members than from

Illustration by Leon Postma, De Correspondent. Reprinted with permission from the Membership Puzzle Project: membershippuzzle.org/articles-overview/public-radio-membership. The piece received additional contributions from Jessica Best, Emily Goligoski, Leon Postma, Jay Rosen, and Gonzalo del Peon contributed to this post.



any other source, including government.

I interviewed membership staffers, general managers, and industry experts at:

- WGBH in Boston, Massachusetts
- New York Public Radio (WNYC and others) in New York
- WFMU in Jersey City, New Jersey
- NPR in Washington, DC
- Southern California Public Radio (KPCC and others) in Pasadena, California
- KRCL in Salt Lake City, Utah
- Minnesota Public Radio (several stations with different call signs) in St. Paul, Minnesota
- Oregon Public Broadcasting (several stations) in Portland, Oregon
- Greater Public (an industry organization that has 253 public media stations as members and organizes membership training and resources for them)

I asked all of my interviewees questions including “how large is your membership team?” and “what fundraising appeals do you use most successfully?” You can see a sample of the questions I asked here, and you’re welcome to use this question list for your own purposes.

As for staff, Utah’s KRCL has a full-time membership staff of one person, aided by volunteers, while Boston’s WGBH employs a staff of 90 to work on their and other stations’ membership programs. Some stations play only music, while others also carry news. Two have television stations in addition to radio. Five are NPR affiliates (two aren’t), and they’re geographically dispersed across the Lower 48. (Beyond my sample, we studied how more stations invite their audiences to participate and are eager to see examples you’d point us to beyond the U.S. for this living list.)

LISTEN UP: WHAT PUBLIC BROADCASTERS HAVE KNOWN FOR DECADES

1. Volunteering brings in members - and ensures your legacy

At KRCL in Utah, membership director Haley Cahill Wightman is the only full-time membership staffer. She says volunteers are essential to the station’s pledge drive (volunteers answer phones) and also perform a host of other functions throughout the year.

Volunteering, in turn, prompts financial support for the station: “The more engaged people become as volunteers the more they give as members,” Haley says. Volunteering is one way that members identify with the station: “When you see someone else wearing the KRCL T-shirt you know that they’re part of your special community within Salt Lake.” Haley herself began as a listener and then volunteered before becoming a full-time staffer at KRCL.

Volunteering can generate revenue and community engagement, and is especially important to younger supporters, says Michal Heiplik, executive director of membership marketing at WGBH in Boston. Several stations ask for volunteers during pledge drives, as well as at station-sponsored community events like music concerts.

What can other media organizations learn from KRCL and WGBH? Organizing a useful volunteer program is time- and resource-intensive, but can be a powerful way to create belonging and deeper future contributions, especially among younger potential members.

2. Love them or loathe them, pledge drives are key

A pledge drive is a period of time from a few hours to a few days that a public media organization devotes to asking listeners and viewers for financial donations. During the pledge drive, almost all programming circles back to the financial ask. All the organizations I spoke to hosted a pledge drive at least once a year.

New York Public Radio (WNYC) told us about the abbreviated, “warp speed” pledge drives the station hosted before and after the 2016 presidential election. Anne O’Malley, vice president of membership, said that as part of these pledge drives the station was open about why they shortened the pledge drive. “In response to needs from our newsroom we cut the time, and we used that in a very transparent way [to tell listeners] ‘you guys are depending on us to make a decision in this critical election,’” Anne says. The subsequent pledge drive broke a record that had been standing since 9/11.

Other stations describe the pledge drive as a chance to highlight the station’s personalities. Ken Freedman, general manager and program director at Jersey City-based WFMU, says they try to have fun with their March pledge drive by pairing up DJs and running special programs.

Can other media organizations pull off pledge drives? It depends. Reminding listeners of the organization’s mission at regular interval can encourage people to buy in financially. But a generic pledge drive, repeated similarly or too often, can exhaust and annoy listeners (and for broadcast there’s no way to shut pledge drives off for those who have already donated). Mission-driven organizations do well

with pledge drives. The most successful ones, in our data set, tried to demystify why the organization was asking for money.

3. Membership is a form of altruism

A key element of public media membership is generosity: members get the exact same radio listening experience as people who don't donate. Philosophically, that attitude makes a public media donation very different from a paywall, which limits access to coverage based on contribution level. When I spoke to staff in public media, they described donation as a form of altruism or community service.

Although this mission may seem limited to public media, we've found in our research that people who support news by paying for it often say they want the core news product to be open. Our research director Emily Goligoski found that news site members frequently say that underwriting news that others get to enjoy for free is a point of pride for them.

Bob Breck, director of membership at Minnesota Public Radio, said their members mention wanting to help the community as a reason for donating. Michal Heiplik of WGBH says philanthropic donors form a core donor base for public radio. Donors give money because "they believe in our [public media's] place in the fabric of American society." He likened public media to libraries: public goods.

SWITCHING CHANNELS: WHAT PUBLIC BROADCASTERS WILL NEED TO DO IN DECADES TO COME

For years, membership in public media almost always meant only one thing: financial donations, a finding confirmed not just in my interviews but also in our accompanying database. Membership departments are often assessed based on how much money they bring in.

At MPP, we're not just interested in donations. We're interested in relationships: where do they begin and what do they mean to the people who participate? Where do financial asks enter the picture, and what are other ways to add value to audiences' lives? As consumer behavior shifts, so do expectations, and public media is grappling with these changes just like the for-profit media industry.

Today, there are hundreds of ways to access public media content, including podcasts, social media clips, websites, apps, and the internet. People have many ways to consume, and many ways to give. What does the shift towards online consumption and donation mean for the membership relationships of the future, and how do these new media spaces challenge long-standing practices?

1. Moving from on-air to online to on-demand

An increasing number of radio listeners want to view, listen, and give online. According to Pew's audio and podcasting fact sheet, "in 2017, 61% of Americans ages 12 or older have listened to online radio in the past month, while about half (53%) have listened in the past week.

Listening to podcasts – on-demand audio programs – has also grown rapidly, as you can see in this chart from Pew:

For-profit streaming services like Netflix and Hulu have popularized the idea of a content-based subscription – consumers pay a regular

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In 1998, MIT's Comparative Media Studies program held the first Media in Transition (MiT) conference and inaugurated a related book series. Now, twenty years later, we are organizing the 10th iteration of the event. Much has changed over these two decades, but the theme "democracy and digital media" is as urgent as ever.

In the U.S., we also have seen changes in the news ecosystem with the likes of ProPublica and community engagement journalism. At the same time, public trust in media has dropped from 55% in 1998 to 32% in 2016, according to a Pew report. For better and worse, a growth of interest in media ritual and a decline in the more familiar transmission paradigm is underway. Given such changes, concepts of participation, trust, and democracy are increasingly fraught and have been powerfully repositioned. How will our news media look and sound in the next decade? What can we learn from news media of the past? What can international perspectives reveal about the variability and plasticity of media landscapes? How are non-traditional sources of learning, knowledge production, and participation reshaping civic spheres?

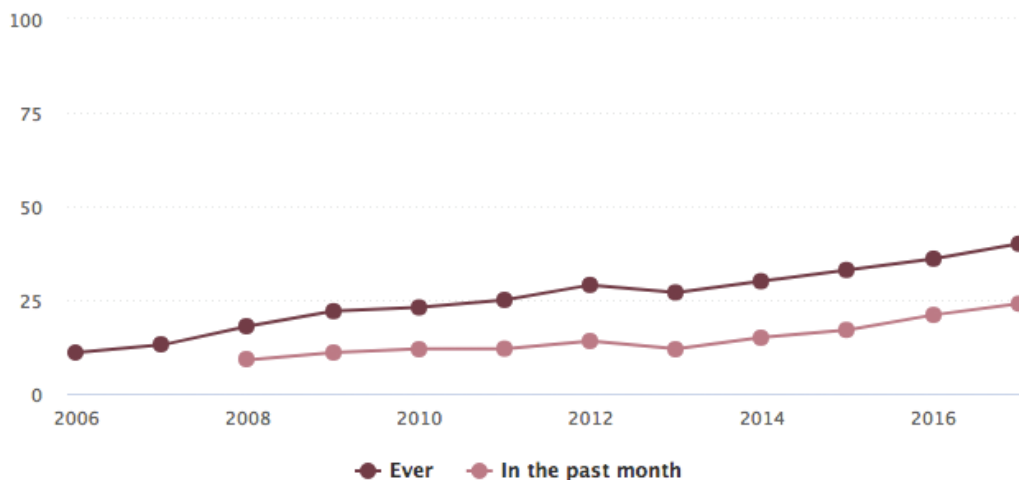
We are interested in how these issues play out across media, whether as represented in television series and films, or enacted in rule set and player interactions in games, or enabled in community media, music, social media, and talk radio. We welcome research that considers these issues in public media and commercial media, with individual users and collective stakeholders, across media infrastructures and media texts, and embedded in various historical eras or cultural settings.

JUNE 16, 2017

Podcast listening

Chart Data Share Embed

% of Americans ages 12 or older who have listened to a podcast ...



Note: Edison Research and Triton Digital's survey is conducted in January/February of each year. Monthly podcast listening data was not reported in 2006 or 2007.

Source: Edison Research and Triton Digital, "The Infinite Dial 2017."

PEW RESEARCH CENTER

fee for access to a vast library of content they consume on their own schedule.

Anne O'Malley from WNYC said, "In some ways Spotify and Netflix and Hulu have helped us because they've started to train this younger digital-first audience that you have to pay to get quality content."

Yet Bob Breck of Minnesota Public Radio asks: "How are the motivations for giving to an individual program different from giving to a radio station? There is a larger question for younger members - whether the concept of membership means the same thing to them." In other words, is a subscription fundamentally different from a donation? And how can public media find a path that brings together these two sets of practices in a way that resonates with younger audiences?

New York Public Radio's fundraising history suggests that the distinction between philanthropic and content-based consumption may be more of a gray area, especially for younger podcast listeners. Anne, the station's Vice President of Membership, explained how the host of their RadioLab program asked for money: he "pulled back the

curtain a little bit and explained all the work that goes into producing RadioLab." In particular, the host included details about how reporters had to get on planes to gather material. "The [audience] is a younger and more digitally-savvy group," Anne says, "When he [the host] mentioned [needing to] put people on planes it made [listeners] think about their own work."

Anne refers to this type of fundraising appeal as "using the social contract", by which she means reminding listeners that what they're consuming isn't free to make. In many ways, this is the same type of request that public media has been making for a very long time.

But highlighting professional similarities is also a powerful way of creating shared identity, and reinforcing that host and audience belong to the same community. Podcasts have been successful partly because they offer a way to build new and deeper relationships with niche audiences. WFMU's Ken Freedman explains: "I wouldn't want to have a program about architecture on the air because it would turn off all the political people," he says. "But if you do a podcast, you can work the Internet and find every last person on the face of the planet

who is interested in architecture.” By taking advantage of on-demand behavior, public media organizations can create ongoing relationships with these niche audiences, in a new way.

But in the podcast world, the pledge drive simply doesn't fit.

“No one would download it,” says Anne.

Ken says he's noticed a difference between loyalty to a podcast and loyalty to his station, although he doesn't frame that difference as a bad thing. “One thing I started noticing about ten years ago: people would say ‘I love that podcast’ not ‘I love WFMU’. They know of it [the station] because of a podcast. So there has been a huge upsurge in the people who just know of us because of a particular program's podcast.”

NAVIGATING GEOGRAPHY AND SCALE

Geography used to be a core part of public media membership, but online listeners aren't bound by location. Lauren Bracey Scheidt from NPR asks, “In a world where someone can access content without going through a geographic gatekeeper, what is the basis of the contract with the listener?”

In a world of national brands and national online scale, local matters – perhaps more than ever.

For Michal Heplik of WGBH, membership services and relationships are different. Michal serves as executive director of the Contributor Development Partnership, a collective that provides membership services for several stations. These services include direct mail, pledge processing, pledge gift fulfillment, canvassing, and other practical elements of a station's membership program. CDP now runs 19 membership programs for about 130 stations, says Michal. They're able to work at scale, thereby limiting cost.

But he's very clear that CDP does not run relationships – relationships are up to the individual station. “We can't replicate relationships at a national scale and we're not trying to,” he says. He questions the idea of a relationship based only on occasional moments of financial transaction. “Just because someone responds to your renewal mail, that isn't a relationship,” he says.

Instead, he highlights the importance of close and local bonds. He says that engaging in online conversations, hosting events, and being present in the local community are how stations can build relationships. The goal, he says, is to “build out a deeper understanding of why the donor is even there.” For local stations, being present in the local community is key. For organizations looking to capitalize on niche interests rather than geography, relationship-building could involve being present in online communities. Either way, when it comes time to ask for money, the organization has to build that ask on a strong understanding of what unique thing brings their audience to the tent.

A TURN TO NEWS?

As local newspapers have declined, public media organizations might be candidates to fill the gap. “In this day and age when newspapers are waning, we're working hard to build our news operations,” says Anne Ibach, director of membership at Oregon Public Broadcasting. The

organization sees news as “the future of the organization.”

Melanie Sill, who spent several years as a journalist and editorial leader at Southern California Public Radio, said the coming years will see a lot more “journalistic work supported by interest groups that want to see issues covered.” Sometimes these interest groups exist at an institutional level, but they might also be individuals or volunteers.

WFMU can't afford a single reporter, says Ken Freedman, but the organization has a volunteer news department. The thought of volunteer reporters might strike professional journalists as a flawed concept, or at least a pathway to misinformation, but it might also be an important way forward. Communities that want issues covered can create beneficial partnerships with journalists, while media organizations can deepen their responsiveness to local communities.

DEFINING THE MEMBERSHIP MODEL OF THE FUTURE

Here at MPP, we've drawn distinctions between thick and thin membership models. Thicker models tend to support strong organizational missions, incorporate members into many aspects of organizational function (not just marketing or finance!), and offer multiple avenues for participation.

One of the most remarkable things about public media membership is how resilient it's proven to be despite changes in economic climate, political atmosphere, and technological capacity. This endurance is a testament to the strong sense of mission at these organizations – a crucial feature of “thicker” membership models. Public media provides something essential – whether it's content, education, community, or a sense of belonging, say the people who work in these organizations. But the membership model relies heavily on often-altruistic donations, and often begins when a member makes their first donation. The lack of avenues for participation characterize the “thinner” membership models we've studied.

Today, new technology is slowly and subtly changing the game by offering more ways for stations to build stronger relationships and thicker membership models, especially with younger audiences. At the same time, adapting to new audience behaviors means questioning long-standing practices like the pledge drive. The work we mention above is the beginning of a long process of learning and adaptation. The first and most crucial step might be more audience research – to understand what emerging audiences want from public media, and how they're willing to pay for it.

“The typical donor is a 60-year-old woman,” says Michal Heplik of WGBH. “I'm sure younger donors are different, but we don't know what is important about how different they are.” This information can become the basis for figuring out how to offer new avenues for participation.

Haley Cahill Wightman of KRCL adds: “Even if people don't regularly donate, I think we have a lot of social capital in our community.” The idea of social capital — goodwill built up over time, from a shared mission and purpose — is an important one in the public media world, and an important thing for all media organizations to build as they look to a member-driven future. ●

THEIR BODIES, MY CHOICE: THE PARADOX OF A COMPASSIONATE MEAT EATER

Tafsia Shikdar, '21

Each year, an editorial board of CMS/W lecturers puts together Angles, a collection of the best work from students in introductory writing subjects. Tafsia Shikdar's piece below is one of ten pieces selected this year and one of five under the umbrella of "Exploring Identity and Experience," with the others collected under "Investigating Issues in Science and Technology". You can read them all at cmsw.mit.edu/angles/2018.

A short grunt was the only acknowledgement I got as the wet snout of this stubborn KuneKune pig continued exploring the grass around my Wellingtons. My shrill commands of "Sit, Jack!" were going unheeded, the leash in my hand earning me no respect. Yet I couldn't prevent the smile formed by my lips as I watched this lump covered in black and white bristles determinedly rooting around for food that wasn't there.

I turned my head to snorts of laughter erupting from the redhead leaning against the pigpen railing, clothed in the red uniform of a Newham City Farm staff member. "Here," Kayleigh confidently declared, "let me show you how it's done."

The sun warmed the back of my neck on this beautiful August day as I watched Kayleigh scoop up a handful of food from a bucket and hold it above Jack's head. "Sit!" she commanded, and lo and behold he sat on his haunches, opening his mouth wide to allow the trickle of pellets to enter his mouth. I burst out laughing as he immediately started crunching, which resulted in stray pieces becoming wedged in his nostrils.

The other KuneKune, a black and orange one, came trotting over at the sound of the pellets hitting the ground, tugging along the volunteer supposedly tasked with walking him. These were Jack and Max (or maybe Max and Jack, I always got them confused...), two of the many mischievous animals that called this farm home.

The London City Farms were not farms in the typical sense; their main purpose was to be visitor attractions within the city. We rarely milked the cows and goats, the hens didn't lay many eggs, and the pigs were for loving. After becoming a weekly volunteer in 2014 at my local farm, I spent hot summer days and freezing cold mornings combing the tangled tails of our ponies, chasing around frisky bunnies to perform health checks, and cleaning out smelly stables. Having grown up in a pet-less household, I finally got the interaction with animals I had always craved. To my eyes, this farm was an animal lover's heaven.

The entire farm, humans and non-humans alike, was a small family. I loved being around the other volunteers and staff members—fellow animal lovers who also recognized that each animal had an individual personality. For example, the staff members would regularly baby-talk to the pigs, scratching their coarse spotted bellies to oinks of delight and treating them with melons when they could.

Yet, at every farm party we had, surrounded by the gentle clucks



Kunekune Pig (Photo by Evelyn Simak)

of the hens strutting about their yard and the whoosh of air from turkeys flapping their wings, there were also the tables loaded with barbecued pork sausages and chicken breast sandwiches. I was struck by the disconnect between these animals and the food on the farm workers' plates.

Was this really an animal lover's heaven?

Of course, I understand the appeal of tasty animal products. As a child, I refused all my mother's curries but the chicken or the lamb, turning my nose up at the foul-smelling blend of zucchini, mushrooms, and red pepper she would conjure up, while happily sucking the delicious bone marrow out of the chicken bone I was gnawing on. Yet my parents were not ones to give in to the whims of their children. In fact, the level of control that my mother tried to exert in my life boiled all the way down to what I ate. And so, a few times a week, this disgusting combination of sludge green, muddy brown, and shriveled red would appear atop my rice, alongside my favorite chicken piece. However, although my parents did force me to ingest some vegetables, there was nothing inherently wrong with my love of meat in their eyes.

I grew up in a family and wider community of meat eaters, and didn't know anyone who questioned the food they bit into. It was ingrained within me that vegetarians were physically and mentally weak radicals, marked out by the pale skin stretched over their thin, nutrient-deprived bodies as they spouted unrealistic visions of a pacifist world. As humans, we are all part of the "circle of life" and we need meat to be strong and healthy. So by the age of 12, in trying to reconcile my adoration of animals with the information that we

needed their flesh to survive, I had mulled over the issues and made the decision that organic meat was ethical. As long as the animals were not mistreated and lived happily, killing them to feed ourselves was not morally wrong. Right?

It's hard to remember the exact moment when this mentality changed. The realization that I had been wrong was not a sudden, emotionally charged decision. It was a slow, rational process, during which I eventually found a convincing counter-argument to every one of the reasons that had led me to my earlier conclusion; that was the way my brain worked.

As a young teenager, on days when I was procrastinating doing my homework and studying for school tests, I would spend a few hours sprawled on my bed, using one hand to scroll through Google on my family laptop. This was a regular pastime of mine, and I would also look up topics such as abortion and transgenderism.

I was first exposed to veganism via YouTube; reaction videos to “crazy” inflammatory vegan YouTubers were popping up everywhere. With a closed mind, I clicked on a few of these vegan channels: Freelee the Banana Girl, That Vegan Couple, Unnatural Vegan. I mean sure, stop the killing, but haven't these people heard of symbiosis?

Unfortunately for my ice-cream loving sweet tooth, these vegan YouTubers made some pretty solid arguments. For cows to produce milk, they have to have given birth recently. They aren't magical beings. They're simply mammals, like us, who produce “breastmilk” for their young. No one ever thinks about what happens to these babies if we want their food source: baby calves become a delicacy, and the barbaric veal industry thrives.

And what happens to the cows after a few years? That grand old retirement home labelled “slaughterhouse.” Like it or not, meat, dairy, and in a similar fashion, egg production, are inextricably linked. The reasons to become vegan are all exactly the same as those prompting vegetarianism.

But was I convinced by any of these arguments at all? As I clicked from link, to webpage, to video, my moral resistance to giving up animal products began to leach away. The strongest arguments I came across were all based on sturdy scientific fact: every nutrient that was said to be lacking in a vegan diet (“where do you get your protein, bro??”) was either found in plants as well, or didn't actually come from animals in the first place. Complete plant protein sources (containing all 20 amino acids, the building blocks of protein molecules, that are required by humans) include quinoa and soy, while a combination of different plants would still meet all of a human's various protein requirements. B12 is actually given as a dietary supplement to animals; it originally comes from soil bacteria. So why the adamant claim that the fact vegans need a B12 supplement proves that a vegan diet is unnatural, when the B12 source in a modern omnivorous diet isn't natural either? Iron, vitamin D, you name it – a combination of different vegan foods has it all.

Leading dietary experts, including the British and American Dietetic Associations, hold the position “that appropriately planned vegetarian diets, including total vegetarian or vegan diets, are healthful, nutritionally adequate, and...appropriate for individuals during all stages of the life cycle” (American Dietetic Association 2009). You don't need



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Vegan cauliflower aloo gobi (Image by Jeffrey Coolwater)

to kill animals to live.

Eventually, after identifying the errors in all the arguments that had seemed so convincing initially, the only reason I had left for consuming animal products was that “they taste so good!!”

It was a Youtube video about a thought experiment that broke down this final defense in my mind: If you could live in a) a world in which humans were killed, b) a world in which animals were killed, or c) a world in which neither were killed, which would you choose? I had to grudgingly admit, as most people do, that the third world is the best. Regardless of whether or not you find animals cute, veganism is about the prevention of taking lives unnecessarily.

Having grown up fighting against the cultural ethics that my mother tried to impose upon me, I had developed the mindset that “that’s the way it is” was not a valid excuse. Who cared that traditionally, in South Asia, girls are domestic and quiet? If the system is wrong, the system should change, regardless of how tough it’s going to be for an individual, or for society. Thus, I knew I couldn’t justify doing something for pleasure when I knew it was wrong. At age 15, just before I started volunteering at the farm, after years of mulling it over, I was convinced that the morally right thing to do was to go vegan. Putting things into practice, however, was a lot harder.

I had always had a strained relationship with my mother. She dictated my life: how I behaved, where I went, and what I ate. Many teenagers of South Asian heritage can relate to having strict parents, but for me, the lack of control of my life led me to a dark place. The only thing I lived for was the hope that one day I could move away for university, and be able to live my life according to my moral values.

Veganism was just another part of me that I would have to put on the back burner until then.

It’s hard to explain why simply saying “I want to become a vegetarian” to my mother would be such a big deal. To be honest, I was angry at the fact that it had to be so — that simple issues such as doing my hair the way I wanted or eating the food I preferred each had to be fought over. The best way I can explain it is that during this period of time, as I was getting older, I was rejecting a lot of cultural expectations my mother had of me. To her, these expectations were mandated by religion, making it all the more vital for me to follow them. As a result, in my mid-teen years, tensions were high in my household, with regular fights as well as deafening periods of silence between my mother and me. To her, my rejection of meat that was clearly “halal” (permitted in Islam) would be another way I was breaking away from her version of religion — something she could not allow—and so a hand I didn’t want to play yet.

As I entered British college at age 16, I began a small double life. In the school canteen, I would skirt the halal chicken sausages glistening with oil, the saucy pasta bake with hidden flakes of chicken, and the mountains of spaghetti Bolognese peaked with green peas and browned mincemeat. Instead I opted for the vegetable pasties, flaky pastry crusts filled with a creamy mix of veggies, or golden baked potatoes topped with tomato baked beans. Although a part of me was still dissatisfied with the cheese element of these meals, I was happy with my choices. Yet at home, I silently took the plates of rice and delicious but ominous meat curries my mother handed me. Then came a day six months into Year 12 that changed my perspective.

As per usual, I couldn’t resist a good debate, especially about issues that I was passionate about. I was sitting around a table with a few classmates, supposed to be doing chemistry classwork. Yet, Rafi was talking to another classmate about the flaws of vegetarianism. I had to jump in, and argue all the reasons why vegetarianism, and indeed veganism, was infallible, according to the research I had conducted over the previous years. To which Rafi retorted: “You aren’t even a full vegetarian, so you can’t say anything.”

I hesitated.

“If you were really convinced, you would find a way to tell your parents.”

After my initial indignation against Rafi’s assumptions about my family, I forgot about the conversation. Until supper.

That night, as the Bengali equivalent of the words “Come to eat!” echoed through the house, my three brothers and I barreled down the stairs as usual. The household atmosphere had mellowed considerably over the past few months. I had achieved a few of the freedoms I wanted, and my mother had gone back to pretending that I still wanted the same things in life as she did.

Grabbing a plate, I served myself some fluffy white rice as my mother did the same for my one older brother and two younger ones. As I stood in the small line that had formed alongside the cooker, strong curry smells wafted into the air from the large silver pans, smells that slightly burned as they entered your nostrils: hints of ginger, garlic,

and turmeric. I recognized the oily sheen on top of the reddish-brown fluid inside one of the pots, which I knew contained hidden pieces of delicious, supple chicken.

Yet, these weren't just lifeless food pieces. They were part of a happy, clucking animal that had had the life hacked out of it, mere weeks ago. But it would be so easy to forget that...

Glancing to the right, I spotted the vibrant green and orange colors of the vegetable curry my mother had cooked, splashed with a hint of yellow turmeric. Suddenly, the earlier conversation of that day, and Rafi's accusations, started running through my mind again.

I made a quick decision: Time to start incorporating some of my vegetarian practices at home. The plan was simple: take the vegetarian option if offered. I didn't have to demand vegetarian meals, but who said 100% of my meals at home had to contain meat?

As usual, my mum took my plate and started to serve me both curries, but I stopped her as the steel serving spoon sliced through the skimmed layer of the chicken curry: "I don't want that one today." As is typical of my mother, she started making a big fuss. "What, are you becoming a vegetarian or something?" In a split second, I retaliated with: "Yes."

I proceeded to the kitchen table and started eating my meal, in the traditional Bengali manner: using my right hand to scoop the rice and curry into my mouth. I ignored the astounded looks my brothers were giving me, simply repeating "Yes" when 15-year-old Fahim echoed my mother's question across the smooth wooden table. My esophagus had clenched with the anticipation of confrontation, and the grains of rice stuck in my throat, individual pieces grazing the lining as they slowly slid down.

I glanced to the right at 13-year-old Younous' meal, imagining the smooth, fleshy texture of the chicken leg sitting on his plate, the taste of my mother's perfect combination of curry and chili powder. Everyone else always made it too spicy. Then, looking back at my plate, I envisioned the "smiling" face of some of the animals at Newham City Farm. Feelings of triumph and relief flooded through me.

I scooped some more guilt-free food into my mouth, savoring the soft pop of the peas releasing their mushy insides, the firmness of the diced carrots that required only slight pressure from my molars, and the juiciness of the green beans — all encompassed in the fragrant taste of cumin and fried onions. The food was delicious, and it was vegan. Still, I didn't think now was the right time to express my wish to become a vegan. That would come six months later, after I moved away to MIT, and had already adopted the lifestyle.

I understand the associations that many people have with food, how certain comfort meals connect us to family, culture, and childhood. The most significant role that my mother played for her children was as the provider of food, but now I will never taste the meals I grew up with again: her keema puff-pastry rolls, chicken and muki curry, and even the vegetable samosas sealed with raw egg. After my struggles against her culture, yet another link with my mother has been dissolved.

Still, as I became more aware of the rationale behind veganism, I

had to realize that food is not merely food when it involves another being. To claim that food preference is simply a personal choice is to forget the lives behind those eggs baked into that gooey chocolate cake.

I only acknowledged the role that food had in my relationship with my mother the last time I went home, at the ripe age of 18. I noticed my mother trying her hardest to accommodate my dietary changes. It was the first time I was going to eat vegan at home, yet instead of being resentful, she had bought almond milk and made vegan cauliflower aloo gobi, all a few days before I even got there. I had been gone for four months, and she was trying her hardest to re-establish a motherly role in my life. For the two weeks I was back, she made sure to cook me as much food as she could. And I have to say, everything does taste better when your mother makes it. I still can't replicate her aloo basi, even though it is literally just onions, potatoes and spices.

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FIRST CMS UNDERGRAD THESESES

The CMS major was launched in 2008 and quickly became the largest humanities major at MIT, but not until this past year have we seen undergraduate students take the impressive step of producing theses. So our hearty congratulations to Allan Ko, S.B. (Comparative Media Studies and Aeronautics/Astronautics), '17, and Alyssa Smith, S.B. (Humanities and Engineering), '17.

Ko's thesis, *The Cultural Life of Suicide: Observing Care and Death at MIT*, "documents the ways in which suicide and mental healthcare become embedded in everyday life as an MIT undergraduate." He argues "that through announcement emails, Facebook posts, publicity posters, and awareness flags, suicide becomes ambient and infrastructural." Smith explored *The Discourse: an Online Debate*, about "a community of people on Tumblr who are yelling at each other about inclusion in the LGBT+ community."

Both theses will soon be available on DSpace, MIT's thesis repository (dspace.mit.edu).

SELECTIONS FROM THE 2018 ILONA KARMEL WRITING PRIZES

The Ilona Karmel Writing Prizes are awarded every May to acknowledge MIT students' best scientific, technical, and creative writing, including poetry — so here we present winning poems from Allan Ko, '17, and Virginia Rosenberger, '20.

Allan Ko, '17

CYBORG { HISTORIES I CAN'T ESCAPE, FUTURES I CAN BARELY SEE }

&\$ (prologue)

at the writing ceremony, the awards for
Good Writing, named after a writer from
the writing department, [] won money
for a poetry collection about the asian
diaspora and being an immigrant and
being caught between two worlds &
yesterday i met a [] scholarship winner
restaurant kid and first gen college &
alison bechdel is a macarthur genius &
2M+ views on the coming out tube video &
whomst capital Nonsense made it so
i turned jealous of ppl who have the kind
of pain they are safe to write about & get
paid money for to write & win awards &
have a good story to sell & be called genius
so the Academy can feel like more inclusive
& sell lies of minority bootstrap pulling &
wrench hearts spin feelings
into \$\$\$\$\$\$\$

queer me out

hear me out: i matter, i energy,
i light and land on your roulettes and
games and fiber faces, i encode and decode

you matter too, telephone wire, you help
we make us a we, played tags, listservs, sub-space re:moved from the
meat
we r/eat

your networks and cir-cum-subscribe it lovingly
and slash it to peaces we like better than yours

prayer to cope with the realization that metal is just as confining as meat

god,,,,,,,,, SO
full
of
“”” FEEELINGS! “””

so

full.of()

{

feel,
ing,

}breathe.on me o god of feeling

[good, bad, nice, ugly, something] if only

while do i wait for =====
godly && satisfiability

&& terminal illness from * to take STOP

*i stepped outside but i could still hear the muffled
eighties music from the party in the basement*

i got a phone call and let it ring. it was from the girl i went to prom with, it was from the boy i thought i dated. it was from a friend i hadn't talked to, it wasn't actually a phone call, only a text. it was a text call, it wasn't the sms kind, it was the new calling feature on facebook messenger. it was from a robot. it was from the girl i went to prom with and the girl we have a picture together and it looks like a wedding in white and june on this day four junes ago we thought you'd like to remember. it was from the eighties they just called and they want their music back. it was from the uber man who drove me home when me and my friend blacked out. it was from my mother. oh how tragic! i got a phone call and let it ring. it went to voicemail but they didn't leave one.

FROM: [me] [dot] mit [dot] edu
TO: [] [dot] mit [dot] edu
SUBJECT: solitude

i feel i (should) remember what it feels like to be alone but not lonely. i know i have been there before. i can read my old writing and trace the ledgers, my accounting of those days i found myself and spent myself on myself. yet how public is my isolation / there are people i follow on tumblr who post intimate pain, insecurity and insomnia and unrequited crushes and such, and such exhaustion! i stood at my window last night and looked up at the green building it was lit up in policeman blue. / forever forever i spend my evenings vicariously, tasting the words as i see them, hearing them again and again, what is the cool flavor of worldliness and photography? like salt on a rare steak. all of it all chemistry, turning attention into gold / i dreamed i went to a party and nobody recognized me: such blessed and terrifying namelessness

ode to care

care for me, i am mine, i am the object of it and the subject of it, and i am care itself, i do, in the presence of care and who i care for who i love and care and am cared by. me i am woman and man i am mine, and you are the who, and the because,

care for me for i am mine, i am: the object, and the subject and i. care itself, i do it in the presence of care and who i care for, who i love...and me, i am woman, cared by women. and i am, and you are who and because.

care — for me, i am mine, the object, subject to it, care itself, what i do and who in the presence of. who i love, who i care for, who i care for. who i care for. and you, are you, are you, because

EARTH (3 POEMS)

Virginia A Rosenberger, '20

FLOWERS

In my retina
are rods
and cones
and flowers

Rods and cones
are locked in their cells
terrified of the dark
but the flowers
grow everywhere

The flowers are there
when I close my eyes
etched without light
and without dark
and without anything

In the dark
I am not a rod or a cone
but a child
trapped in the woods of ghosts
and neuron trees

Flowers have green roots
and I follow them out
but nothing scares me more
than the thought
of dendrite woods without flowers

Flowers can get choked by weeds
but in the dark
I will hand you
a flower

DANDELIONS

This garden is latticed by weeds
that curl about rusting fences
and wind around your wrists
and chafe when you pull too hard
but we can lie in the dandelions
if you want
and think about birds

They said
perfection buys a ticket to paradise,
a crown of flowers, and daisy chains
and one day you can rule the world
but we can talk about weeds
if you want
and think about thorns

Every time I tried
it hurt too much to yank thistles
out from behind my eyes
and thistles can become comfortable
so we can lie about the sun
if you want
and think about dandelions

Maybe one day
I'll learn to tame dandelions
and you'll become a trapeze artist
and my breath will blow dandelion seeds
then we can rip away the thorns
if you want
and run

GRAVITY

Gravity lives in my chest. It pulls the dying sun down the Boston skyline. It would pull us down if we tried to walk across the river, so let's take the Harvard bridge and try to ignore this gravity for another step, another breath of cold air that stings your lungs and chaps your lips and peels away at the layers of words that never fully escape them. Frozen words like little flecks of snow, clinging to sealed lips, glimpsed only in truths that float through the gravity between us. I wonder if your words are only frost on the top of an iceberg, if they'll ever be enough for me to know if your gravity is like mine.

I don't know what to say to you, because words and breath become wisps of white smoke. My fingers are numb and strain to hold onto the truth that every question stuck in my head has an answer. But those answers are lost somewhere in wind above this bridge, and this light, this dark, this gravity that surrounds us is too far from my grasping fingers. My fingers close around smoke.

I'm scared of this gravity, yours and mine, because I only half understand it. People are the Earth rotating through seasons, seeming to change, but always drifting back to winter when it starts to snow. When you're young, snow sits on your eyelashes, but you told me that you've become afraid of winter. And I understand because if we're scared of the things we've done, shouldn't we be terrified of the things we're capable of? Rush hour cars buzz by, like fireflies, like bullets. They churn over slush and it's cold knowing that people have gashed every wound — every wing ripped off, every shot fired — into each other.

You once told me that you believe nobody really cares, it's all wisps of smoke that don't mean anything, but usually I think that the fact that we're both human, both breathing in this gravity, is enough reason to love you. I want to tell you, but all I have is warm confusion and winter is bitter and gravity lives in your chest and sometimes I wonder if gravity controls me.

Gravity lives in our chests. But look at the skyline, how the dying sun drenches the west side of the Prudential. Its glass glows like soft embers and its spire exists somewhere above this snowfall.

Look at how people defeated gravity. ●

UPDATES FROM THE CMS/W COMMUNITY

RESEARCH GROUPS



The Center for Civic Media – created as a collaboration between Comparative Media Studies and the MIT Media Lab and now solely a Media Lab research group but supporting CMS research assistants – is led by Ethan Zuckerman. Mariel García-Montes was a CMS research assistant working on the Co-Design Studio and Design Justice projects under Sasha Costanza-Chock.

The Center continued its work with the Media Cloud project, and a report generated from its data was shared widely in stories such as *The Washington Post's* “The Parkland shooting is different. The news coverage proves it.”

Alongside Zuckerman, Research Scientist Rahul Bhargava developed the application Gobo, which allows social media users to filter their own content, now supported by the Media Lab A.I. Fund. Graduating from his Ph.D. stay at Civic, Nathan Matias launched Civil Servant with a hackathon, inviting researchers to support citizen behavioral science for a fairer, safer, more understanding internet.

With media hits ranging from Techcrunch to the *New York Times*, Joy Buolamwini, in collaboration with Timnit Gebru of Microsoft, produced a report that showed statistically-significant deficits in accuracy when testing dark-skinned subjects, even moreso with women. IBM amended its software for more accurate results within the week and since Buolamwini has been on a near-continuous circuit of ethics and A.I. appearances.

Finally, in an inaugural piece of research on community engagement and intersectional design, Alexis Hope acted as Artistic Director of the Make the Breastpump Not Suck Hackathon, a combined policy summit,

hackathon, art show, and business fair for proponents of fairer maternal leave and more humane breast pumps. Due to intensive and intentional design decisions, the crowd had a wide representation, including women of color, trans dads, and other communities often underrepresented in tech, a selection of which were rewarded with prizes ranging from cash to a paid trip to San Francisco to pitch to VCs.

civic.mit.edu



The Creative Communities Initiative had an active year working across several domains. CCI remains committed to using fieldwork and ethnographic insights to explore the frontiers of social and cultural change through various media communities.

On the gaming front, Professor T.L. Taylor, with several graduate students, continue to work with the AnyKey initiative, a partnership between Intel and the Electronic Sports League to foster and support diversity in competitive digital gaming, also known as “esports”. Full information can be found at www.anykey.org.




Also, in March 2018, Ian Condry organized the Dissolve Music conference and sound festival, featuring over forty musicians from Boston, Berlin, and Tokyo. Co-organized with former MIT lecturer Jan St. Werner and CMS grad student Rekha Malhotra, the conference aimed to dissolve boundaries between performers and audiences, between academic disciplines, and between music and sound art.

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The Design Lab (formerly the Mobile Experience Lab), founded by Federico Casalegno, Associate Professor of the Practice, seeks to reinvent and creatively design connections among people, information, and places. Using cutting-edge information and mobile technology, the lab seeks to improve people's lives through the careful design of new social spaces and communities. The Mobile Experience Lab has reverted to its original name, the MIT Design Lab, a vision of co-founders Bill Mitchell and Federico Casalegno. This name more accurately reflects the research and methods of the lab.

In January 2018, Professor Casalegno taught an IAP Course in collaboration with MIT Media Lab on the topic of “Envisioning the Future of Aquarium”. Sponsored by the New England Aquarium of Boston,

the workshop brought together over twenty students from various disciplines across campus to envision, design, and prototype the future user experience (interactive and immersive displays) in the aquarium. With additional funding from the NEAQ, Design Lab will continue to work on developing these visions to exhibit at the NEAQ's 50th Anniversary Event in 2019.

In February 2018, Professor Casalegno began a one-year leave of absence from MIT, after spending eighteen years at MIT as founder/director of Design Lab/Mobile Experience Lab. He is currently at Samsung Design Innovation Center, based in San Francisco, leading a global team of designers and engineers, and bringing the value of design research to the global consumer-electronics company. In his absence, Professor James Paradis, with Design Lab Research Associate Yihyun Lim, are leading the lab.

In March 2018, the lab held "Tingling the Senses Hackathon". The Hackathon called for creating unexpected sensory experience through design and embedded technology, in the form of wearables, connected internet-of-things (IoT), and portable objects. Over thirty hackers of various backgrounds from MIT and Harvard assembled for a weekend to develop their ideas. Thousands of dollars in prizes were awarded as well.

The lab also held a "Future of A.I." workshop in Sao Paulo, Brazil. In collaboration with Banco Bradesco, the team hosted a three-day workshop focusing on a human-centered approach to designing experience with A.I. technologies in the context of banking.

The lab has continued to collaborate with long-time partner ENI, within the MIT Energy Initiative, to research in the field of IoT applied to wearable technology and portable robotics for safety in the workplace. Following the previous work done in the development of Advanced Safety Devices, the team expanded the focus bring in the research areas of portable robotics and compact drones for remote inspection of confined spaces. In June 2018, the Design Lab team presented the research and design prototypes of the hybrid drone-rover system to MIT-ENI 10th Anniversary Workshop in Milan. Related research was also presented at the PETRA conference

in Greece.

In its second year of sponsored research with Puma, the Design Lab team of researchers and students traveled to Puma Headquarters in Herzogenaurach, Germany, to present their semester-long work on smart material structures and connected shoes. During this three-day workshop, the team collaborated closely with the Puma Innovation Team in presenting, testing, and co-creating solutions for further research.

Previous year's research with Puma in applying auxetic structures for customized comfort and improved performance (through generative design and simulation) resulted in commercialization as Puma's next line of innovative running shoes. The lab is in the process of licensing the technology as well as working closely with the production team at Puma to optimize the design for manufacturing.

In April 2018, the Design Lab held its first big public exhibition of ongoing research in the field of Biodesign at Milan Design Week. Titled "Breathing and Living the Future of Biodesign", the exhibition showcased four select strategic vision and proof-of-concept prototypes to illustrate how micro-organisms can produce novel product experience in the near future. Milan Design Week is one of the largest design festivals in the world, bringing over 500,000 people to design exhibitions and events throughout Milan.

The lab is wrapping up its research efforts with Philips Signify (Philips Lighting), a project on the topic of Caring City which started in fall 2017. Within this topic, the team researched societal and user values of "caring" through ethnography and is working on prototyping the projected future experience of connected dynamic lighting through visual and interactive media.

Professor Casalegno taught two Professional Education Courses this summer, titled "Innovation: Beyond the Buzzword", and "Driving Innovation through Design". Assisted by Yihyun Lim, the course introduced participants to the concepts in design thinking and innovation through lectures and hands-on workshop sessions.

design.mit.edu

the education arcade

The Scheller Teacher Education Program and The Education Arcade explore the potential of games and simulations as media that supports learning both in and out of the classroom.

Over the past year STEP has continued work funded by five National Science Foundation grants aimed to integrate science and computer science education in upper elementary and high school students with Starlogo Nova, a web-based 3D modeling tool.

STEP has also continued work with collaborators such as the Emerson Collective on implementing project based learning in their XQ Schools, the MIT Game Lab on co-developing a virtual reality game funded by Oculus Facebook and the Woodrow Wilson Fellowship Foundation to develop their Masters of Education curriculum for the Woodrow Wilson Academy. The work with the Woodrow Wilson Fellowship Foundation also includes the development of a game for students called, ELK or "Eliciting Learning Knowledge" that will help teachers evaluate their students' existing knowledge.

The Science and Engineering Program for Teachers (which partners with MIT alumni clubs) was successfully held again this year with significant expansion to programming thanks to new funding. The program almost doubled in size thanks to funding from alum Rick Barry.

The Scheller Teacher Education Program also served as a co-host and co-organizer for the Connected Learning Summit, with over 600 attendees. This conference aims to fuel a growing movement of innovators harnessing emerging technology to expand access to participatory, playful, and creative learning. During the conference Professor Klopfer held a talk about the new MIT Press book he co-authored with Scot Osterweil, Jason Haas, and Louisa Rosenheck titled Resonant Games. The book explores how to design educational games that engage young learners and integrate content and play.

educationarcade.org



As part of its mission to bring together scholars, creators, and technologists, The Game 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 a ninth year running.

In Fall 2017, the Game Lab co-hosted the Boston Festival of Indie Games for the fifth 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 Game Lab has been pursuing projects in collaboration with the entertainment video game industry, and as such has run events with Tencent E-Sports, based in Shenzhen, China, and the Swedish Games Industry in Stockholm, Sweden. As a result of these efforts, the MIT Game Lab has begun a research relationship with Stockholm-based King Entertainment, creators of Candy Crush Saga, to conduct design research around tools to assist game developers with assessing diversity in the character designs in their games.

As part of a broader research project focused on surveying representations of European colonialism in board games, members of the MIT Game Lab traveled to Bogotá, Colombia, to conduct a four-week class on developing serious videogames about topics important to people of the region. One example, in collaboration with the Universidad de Los Andes, Colombia, focuses on the peace process between the Colombian government and the FARC guerrillas. Via

an MIT CAST-funded proposal, a series of workshops took place in San Juan, Puerto Rico at the Neeuko Collaborative Innovation Center at the Universidad del Sagrado Corazón and at MIT to create "counter-colonialist" board games about topics of importance to the people of Puerto Rico, such as local government and international response to the devastation caused by Hurricane Maria.

In collaboration with the MIT Education Arcade, the Game Lab is in the middle of an 18-month project, titled CLEVR (Collaborative Learning Environments in Virtual Reality), investigating the use of virtual reality games to help students understand issues of scale in biological systems, particularly at the cell and DNA level. Prototype development and initial research is supported by a \$450,000 unrestricted gift from Oculus. An additional \$900,000 unrestricted gift from an MIT donor is forthcoming, to fund three additional years of development and distribution.

The Game Lab received Student Fellowship grants from the MA Space Grant Consortium to continue development of Einstein's Public Playground, an interactive planetarium experience showcasing the visual effects of near-light speed travel. The experience is planned to be shown at Charles Hayden Planetarium at the Museum of Science, Boston, and at the Abrams Planetarium at Michigan State University.

In summer 2018, the Lab partnered for a second time with MIT alum Riz Virk, '92, and Tuff Yen, president of angel investor Seraph Group, to host Play Labs @ MIT (playlabs.tv), a nine-week summer accelerator for MIT affiliated startups developing products and services using playful technology. This second batch consists of startups spanning a wide range of categories, including: eSports (two startups), VR/AR applications (two startups), Educational Technology (two startups), Blockchain (two startups), A.I. & Machine Vision (two startups), and Voice Applications (two startups).

gamelab.mit.edu



Global Media Technologies and Cultures Lab is a new 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, creative research, and critical analysis 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 Lab is currently host to five projects. Interlinking the Global Internet, supported by the Skoltech Foundation, looks at how and why satellites have become vital for global internet connectivity in certain parts of the world. Network Sovereignty, a three-year project funded by the National Science Foundation, uses fieldwork and ethnographic methods to investigate how low-income, rural communities conceptualize and practice "network sovereignty" in relation to local network initiatives. The Social IT Solutions workshop, supported by J-WEL at MIT, will equip undergraduate and graduate computer science students at the Dar es Salaam Institute of Technology (DIT) and the State University of Zanzibar (SUZA) with interdisciplinary knowledge and skills in the areas of information communication technologies (ICT) for development, digital media, and design learning. Surveillance Pressure Points, supported by the International Policy Lab at MIT, involves mapping out the pressure points for privacy invasions

in the digital ecosystem. It will include interviewing leaders of digital privacy advocacy organizations and trying to understand how these organizations are strategizing to address erosions of online privacy. And Tech Companies as Modern Media Conglomerates explores how Amazon and Alibaba emerged as media or e-commerce entities and have become giant cross-sector commercial ecosystems. It expands research on media empires and global political economy of the media.

globalmedia.mit.edu



HyperStudio – MIT’s Laboratory for Digital Humanities – 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.

HyperStudio’s signature project, the NEH-funded, online educational multimedia annotation project “Annotation Studio” has grown its worldwide user base significantly above 10,000 educators and students. Annotation Studio has been integrated into more than 1,000 humanities curricula at universities, community colleges, and especially high schools. The project has seen significant uptake on the high school level with curricula integrating Annotation Studio as a core component into Literature, American Studies, Social Sciences, and other humanities fields. In addition, thirty educational institutions have set up their own site-specific installations of Annotation Studio, including Harvard University, Vassar College, Barnard College, Hofstra University, Humboldt University (Germany), Wellesley College, and Stony Brook University. 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, “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 U.S. A significant number of Annotation Studio users around the world have been organizing numerous workshops primarily for other educators or school IT personnel to introduce them to the pedagogical capabilities of the project.

Work on Professor 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. The goal of this collaboration is to bring Professor Manning’s extensive research online. Based on biographical data of black doctors from 1860–1980, along with tens of thousands of personal and institutional documents and 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. During spring 2018, the project was at the core of a collaboration with the University for Applied Sciences in Potsdam, Germany, in which students and faculty collaborated with students of CMS.S62/S98, an advanced Digital Humanities subject, on conceptualizing and implementing new data and interface approaches to engage a broad set of users in the untold history of blacks in American medicine.

HyperStudio’s 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 U.S.–Iran Relations projects. The initiative was presented at several conferences, including the annual Digital Humanities conference in Montreal.

HyperStudio’s director, Kurt Fendt, offered a second, advanced Digital Humanities subject starting in spring 2018. Based on the successful entry-level, project-based Digital Humanities subject, the new course focuses on machine learning, critical data visualization techniques for humanities-related data, and new archival approaches. The development of the advanced Digital Humanities class and reconceptualization of the entry-level Digital Humanities subject has been supported by a d’Arbeloff grant.

HyperStudio hosted a Course 6 undergraduate student as part of the newly established SHASS–EECS SuperUROP program. The selected student worked on the integration of machine learning techniques into HyperStudio’s existing and new archives, tools, and projects. The completed project, Spectacles, has been presented at several venues for innovative approaches to complex user-enhanced data.

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 grown well beyond 1,000 active subscribers. HyperStudio’s Twitter account now has more than 2,400 followers.

hyperstudio.mit.edu



**Imagination, Computation,
and Expression Laboratory**

The Imagination, Computation, and Expression Laboratory (ICE Lab), established at MIT in 2010 by D. Fox Harrell, Professor of Digital Media & Artificial Intelligence, applies A.I. and cognitive science approaches to the research and development of interactive narratives, videogames, virtual reality, social media, and related forms of digital media.

Harrell was recently appointed as the director of the MIT Center for Advanced Virtuality, a new center for research into virtual reality, augmented reality, and related technologies.

He is also currently pursuing several endeavors advancing his research on virtual identity. 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. This year he also concluded a three-year MIT CSAIL-Qatar Computing Research Institute (QCRI) collaboration researching culturally-specific everyday uses of virtual identities in social media and videogames (with the Middle East and North Africa region as a case study). He also collaborated on *The Enemy*, a Rose d'Or award-winning project using virtual reality technologies to help humanize the other in the face of global conflict (e.g., in Gaza, Congo, and El Salvador).

Outcomes of recent ICE Lab projects include examples such as Grayscale, an interactive narrative to teach users about sexism in the workplace, 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 A.I. tool called AIRvatar to analyze and reveal patterns in how people develop and use virtual identities. For example, it has used AIRvatar 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.

icelab.mit.edu



The Open Documentary Lab (ODL) brings storytellers, technologists, and scholars together to advance the new arts of documentary. Founded by Professor William Uricchio and directed by Sarah Wolozin, the lab is a center of documentary scholarship and experimentation at MIT. Through courses, workshops, a fellows program, public lectures, experimental projects, and research, the lab educates and actively engages the MIT community and the larger public in a critical discourse about new documentary practices and encourages people to push the boundaries of non-fiction storytelling. The lab currently has two graduate students, four faculty affiliates (Vivek Bald, Sasha Costanza-Chock, Christine Walley, and Hanna Rose Shell) and collaborations with leading institutions including Sundance institute, Tribeca Film Institute, and National Film Board of Canada. It has attracted the interest of major foundations including the MacArthur and Ford foundations.

In September 2017, the lab began work on a white paper commissioned by the Ford Foundation to survey the history, methodologies, and best practices of co-creation. To date, we have interviewed over seventy people, conducted five group feedback sessions, and written six case studies. The white paper will be finished and published in November 2018. We received new funds to host a symposium about co-creation which will take place in September. The co-creation studio mentored filmmakers throughout the year including the Detroit Narrative Agency, Rada Films and Assia Boundaoui among others. We also ran a workshop on surveillance funded by

Mozilla Foundation.

We were asked to submit an application for a new three-year \$900k grant from the John D. and Catherine T. MacArthur Foundation and expect to receive the grant in September. The lab continued its fellows program, lecture series, convenings, and resource development.

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

In June, Professor Uricchio received a multi-year grant of \$50,000 from the International Documentary Festival of Amsterdam to advise on their research.

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. The lab's Medium publication, "Immerse: Creative Discussion of Emerging Non-fiction Storytelling", continues to thrive, with contributions by MIT faculty, researchers and students.

opendoclab.mit.edu



**TEACHING
SYSTEMS LAB**

The MIT Teaching Systems Lab — established in 2015 by Assistant Professor Justin Reich — designs, implements, and researches the future of teacher learning. All around the world, education stakeholders are calling for more ambitious teaching and learning in classrooms: less rote recitation and more active, engaged learning. The only way that will be possible is if we can dramatically increase the quantity and quality of teacher learning available to educators throughout their careers. At the TSL, we work on this urgent, global challenge through three lines of work: 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) exploring new opportunities for playful assessment in schools. The lab has two additional Principal Investigators (Eric Klopfer and Vijay Kumar), four research scientists, three post-doctoral researchers, six instructional design staff, three graduate students from Comparative Media Studies and from Electrical Engineering/Computer Science, and over twenty undergraduates who work with the lab during the year.

With Eric Klopfer's Education Arcade, and with support from resource development staff throughout the Institute, we raised \$7.25 million dollars from the Emerson Collective to support work with educators. We created a private online course, *Launching Innovation in Schools*, that included 665 XQ participants, and a new MOOC — *Envisioning the Graduate of the Future* — with over 2,000 registered participants and 95 certificate earners.

We re-ran two additional MOOCs funded by Microsoft, *Launching Innovation in Schools* (3,419 registered, 82 certified) and *Design Thinking for Leading and Learning* (5,597 registered, 118 certified). Justin Reich and colleagues won the 2018 MITx Teaching and Learning Award.

We raised \$150,000 from Google, \$100,000 from the Woodrow Wilson National Fellowship Foundation, and \$50,000 from the Jameel World Education Lab to fund work helping teachers addressing issues of bias and equity in teaching practices. Since starting this project in 2017, through online practice spaces, in-person workshops, and workshop materials, we served over 4,000 educators from 45 states through partnerships with Code.org, Exploring Computer Science, Mobile Computing Science Principles, the College of St. Scholastica and other organizations.

We won a \$300,000 EAGER grant from NSF to support research into formative assessment in maker education environments, in partnership with MakerEd and school districts in California and Virginia. We are working with two schools that implemented maker-centered curriculum to develop and incorporate ten embedded assessment tools

that can be used to assess middle school students' maker mindsets and skills as well as domain-specific standards.

We hosted six lab playtest events at the MIT Office of Open Learning, where teachers and teacher educators offered feedback on our prototypes and learned more about games and simulations in teacher education. We hosted 169 attendees in 2017–2018, and we supported other research groups in testing new projects, including from the MIT STEP Lab, the Media Lab, the Woodrow Wilson Fellows, OCW Educator, and the Harvard Graduate School of Education. In 2017–2018, playtests have helped four masters students and thirteen undergraduates gather data for theses and class projects.

Justin Reich taught a new class, *Learning, Media, and Technology*, to twenty MIT undergraduates and graduate students from MIT and Harvard.

We presented our research at Learning@Scale, the International Conference of the Learning Sciences, the ACM Special Interest Group on Computer Science Education, the American Educational Research Association Annual Meeting, the National Association for Research in Science Teaching, the American Academy of Colleges of Teacher Education Conference, the Learning with MOOCs Conference, and the Computer Supported Collaborative Learning Conference. We presented at invited talks at Harvard University, Carnegie Mellon University, the Hasso Plattner Institut MOOC Symposium, the Northeast Big Data Spoke, the LearnLaunch-MIT Across Boundaries Conference, BETT Asia, EduTECH Middle East, the Association for Computing Machinery Education Council, the Jameel World Education Lab Learning Weeks, the Massachusetts Education Technology Administrators Association, the QS Edudata Summit, and the Innovation in Education Conference. We published papers in *AERA Open* and *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.

At the request of MIT's Dean of Digital Learning, we are conducting an evaluation of the Supply Chain Management MicroMasters, the first MicroMasters program offered by MIT and one of the first blended master's program nationwide. In our research, we've examined log data from 116,850 students who participated in one of the Supply Chain MOOCs and 14,355 pre-course survey responses. We have also conducted in-person interviews with blended (N = 33) and residential (N = 18) students in the Supply Chain Management Master's programs about students' on-campus experiences and collected end-of-semester survey data (N = 64). Additionally, we have analyzed course grades from all students in the Supply Chain Management Master's programs and any student in a course with at least one SCM student

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.

tsl.mit.edu

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.

During 2017–2018, the quick placement of a postdoc in a tenure-track position and the lack of a CMS research assistant meant the lab had a small staff of the director, one research associate, and one predoc. Nevertheless, work proceeded.

The Trope Tank's collaboration led to a new online literary magazine, *Taper*, to run twice yearly. *Taper* is for computational creative writing and is published under the imprint of Montfort's micropress, *Bad Quarto*. The editorial collective includes a faculty member

from the University of Massachusetts, Boston, and an MIT undergraduate. Trope Tank predoc Pierre Tchetchgen published a poem in the journal that he developed as part of his dissertation project. To present the first issue, an exhibit (with dedicated presentation of each piece published) and reception was held in the Trope Tank on May 22, 2018.

Along with MIT's Rotch Library, the Trope Tank hosted the Author Function exhibit January–March 2018, curated and installed by Montfort. This showcased computer-generated books from Montfort's collection and the new book series Montfort is editing, from the Denver nonprofit press, Counterpath: Using Electricity.

In September 2017 the Trope Tank collaborated with Michel DeGraff of Linguistics to bring Haitian poet/singer/songwriter B.I.C. (Roosevelt Saillant) to MIT for a short visit. This included the concert B.I.C. at M.I.T. in Stata on September 19, 2017, which was well attended by members of the local Haitian community as well as by the immediate MIT community. It also involved a one-day collaboration between B.I.C., DeGraff, and Montfort to develop the first known digital poem in Haitian Creole, "Sentaniz Nimerik."

In June the first peer-reviewed journal article on the Renderings translation project appeared; one translation from French was also published this year. We anticipate more activity on this project when there are again in-house literary translators, for instance ones who visit with Fulbright or CAST support.

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 from MIT.

An Adana Eight-Five platen press, a high-quality hand-operated tabletop letterpress, was added to the lab for teaching and very small print-run projects. A large cabinet of type was also procured and brought to the lab.

A tour of the Trope Tank was given to symposium participants as part of Grappling with the Futures: Insights from Philosophy, History, and Science and Technology Studies, Harvard and Boston University, April 30,

2018. The lab's equipment and researchers also supported a display of Commodore 64 work at the Boston Area demoparty, @ party; Commodore 64 work at the New York City demoparty, Synchrony; Commodore 64 projections at New York City performance venue PSNY (formerly PS122); and other exhibits and events.

trope-tank.mit.edu



wrap@mit.edu

Writing,
Rhetoric,
And
Professional
Communication

Writing, Rhetoric, and Professional Communication (WRAP) collaborates with every MIT department to provide communication instruction to MIT students at all levels, from first-year undergraduates to advanced graduate students. WRAP is devoted to teaching students how to analyze and produce effective communication, and is led by Director Suzanne Lane and Associate Director Andreas Karatsolis. As the instructional backbone of MIT's communication requirement, WRAP teaches the foundational writing subjects (communications intensive humanities and writing subjects, or CI-HWs) in CMS/W, and works collaboratively with MIT faculty to provide embedded and integrated communication instruction to over 4,000 undergraduates. WRAP's nearly 40 faculty teach written, oral, and visual communication in more than 100 communication-intensive subjects, from "Introduction to World Music" to "Neuroscience of Morality" to "Product Engineering Process." WRAP also teaches both semester-long subjects and specialized communication workshops for graduate students in a variety of departments, including Supply Chain Management, Leadership in Global Operations, and Aeronautics and Astronautics, as well as many specialized workshops open to the MIT community during Independent Activities Period. Because we assess the writing of incoming first-year students (through the

Freshman Essay Evaluation) and of incoming graduate students (through the Graduate Writing Exam), we have a rich set of data for understanding the communication abilities, and needs, of MIT students. Our instructional approach is research based; we analyze the genres, discourse, and reasoning of each field, identify the challenges that students face in developing professional-level communication abilities, and develop targeted instruction to help students gain both a conceptual understanding of rhetorical principles, and procedural knowledge of how to apply them for different contexts, audiences, and genres. WRAP also researches how professional and disciplinary communication practices are changing with new media, in order to prepare students for the complex communication landscape they will enter.

WRAP has collaborated with half a dozen new communication-intensive subjects in Civil and Environmental Engineering, Physics, Chemistry, Brain and Cognitive Sciences, and Economics and has provided workshops on professional communication to students in the MIT Energy Initiative and a thesis-writing bootcamp for graduate students in Mechanical Engineering. During IAP, WRAP offered workshops in Communicating Science to the Public, Writing Successful Proposals, Reasoning and Argumentation, and Beyond Citation: Understanding How to Reason with Sources.

To improve our understanding of MIT students' communication abilities, and to design a system for longitudinal assessment, we have designed a new, more rigorous and detailed assessment instrument, which we call a "generative rubric," and a system by which this rubric can be used to generate pedagogical feedback for students, as well as produce research data that can be used for curricular design. We are working with an industry partner, Vivantio, to build this system, which will be the first automated writing assessment tool that combines data analytics with human assessment of rhetorical ability, for longitudinal research on writing. Our pilot of the system in an alpha version this year has already generated a great deal of useful data that will allow us to better target our instruction in the CI-HW subjects.

WRAP's research lab, ArchiMedia, in-

Poet and friend **Bill Corbett** passed away in August at age 75. He was “a lion of the Boston poetry community,” as WBUR put it. He lived for decades in Boston’s South End, in a home that served as famed literary salon, though he died in Greensboro, Vermont, where his wife’s family has lived for more than a century.

He is missed by colleagues of the five Massachusetts schools, along with Brown University in Rhode Island and New York University, where he taught poetry and expository writing. He was writer-in-residence in the Program in Writing and Humanistic Studies, one of the two programs that became Comparative Media Studies/Writing.

In a *Boston Globe* obituary, writer Paul Auster said that “Bill had a quality I’ve never found in anyone else I’ve known. [It’s] something to do with a generosity of spirit that made him one of the most ardent and thoughtful friends.” The *Globe*, in a 2012 article, said he kept



Bill Corbett
(October 11, 1942 – August 10, 2018)
Writer-in-Residence

his home as “a place where poetry was read aloud and where the idea that to be creative you had to work alone in a cell, giving everything to your muse, was roundly disproved.”

At a party marking Corbett’s retirement from MIT in 2014, CMS/W lecturer Edward Barrett said, “For two decades you have given your all to your

students and MIT. Beyond calculation, in this Institute devoted to calculation, is the influence you have had on your students as they leave to live their varied lives after graduation. In a later poem, called ‘MIT Poetry,’ you sketch some students in your class. It ends with the tide of classes changing, an instructor waiting to use the room who asks, in a voice laced with acid, if your class is ‘ahem, ready to leave’ No, they’re not. It’s Corbett’s class. Why would anyone want to leave?”

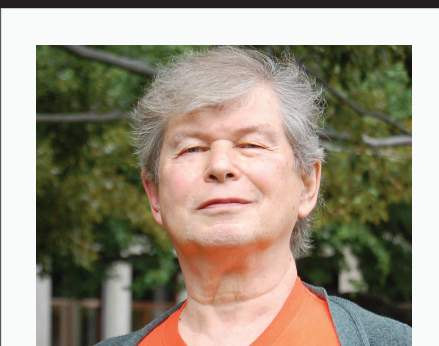
Corbett responded, “To not work with MIT’s brilliant and quirky kids... To not be touched and inspired by their ardor and intelligence...To not be in daily touch with all that youth and promise...well, I have books to write and books to publish and read and the life of a husband, father, grandfather and friend to live and if this is the first step into new adventures I am a lucky man. I’ve been lucky, unsurpassably so, in my years here.”

This summer we also said good-bye to **Stephen Brophy**.

He was a long-time lecturer, first working at MIT in 1989 and later joining Writing, Rhetoric, and Professional Communication to develop students’ communications skills in partnership with departments — in Brophy’s case with a focus on History and the Program on Science, Technology, and Society.

A Colorado native, he was a member of the Boston Society of Film Critics and the editor of *The Fenway News*. Prior to teaching at MIT and the Cambridge Center for Adult Education, he worked at two other Cambridge institutions: Harvard Book Store and WordsWorth.

A week after his death, Brophy’s family opened his Boston apartment to friends and acquaintances to carry out one of his wishes, that they take home any of the countless books on the



Stephen Brophy
(December 5, 1947 – August 25, 2018)
Lecturer

shelves that lined his walls. His library featured every genre and era. Ancient history, Hindu texts, short story collections, 20th century fiction, religious exegeses.

To scroll through his Facebook page in the days after his death was to see

testaments to the impact he had on writing colleagues at MIT. Introductions to Alice Munro, to opera, ’70s films, the Fenway, and more.

His memorial was hosted at the Brattle Theater, one of his favorite places, where in the background they screened Brophy’s favorite film, “*Pather Panchali*”, a story of a rural Indian family centered around a young boy and the women that raised him. The memorial’s print program offered a quote from him anyone would do well to live by: “You never know what’s going to happen, so eat dessert first.”

His family has encouraged friends to donate in his name to two organizations:

- The Brattle Theater
- The Bloom Nepal Foundation, which among other activities funds childhood education in Nepal

vestigates 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. WRAP has made strong progress on three separate grant-funded projects.

With funding from the National Science Foundation, WRAP is participating in a multi-institutional project to study the effects of teaching undergraduate STEM students how to effectively peer review each other's texts. This involves collaborating in the 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. It incorporates natural language processing and sentiment analysis to analyze students' responses in cognitive, interpersonal, and intrapersonal domains. WRAP included undergraduate subjects in Biology, Materials Science, Mathematics, and Computer Science. This project has completed the collection of data and will move into an analysis phase. Preliminary results were presented at the Fifth International Conference on Writing Analytics.

In 2016, 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 function as discipline-specific maps that visualize relationships between concepts and the reasoning patterns connecting them. Students 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 the diagrams are visual and schematic, they

can be remembered easily, and thus aid not only in the preparation for communicating to a specific audience and context, but also in improvising or adapting to audiences in live situations. Before receiving the grant, WRAP had completed a reasoning diagram in Materials Science and Engineering, and was partway through constructing one for Comparative Media Studies. This year, it completed the diagram for CMS, as well as for Brain and Cognitive Science, and Computer Systems. We've also made progress on diagrams for Chemical Engineering, Applied Mathematics, and Mechanical Engineering. This year, we have presented elements of the methodology, the existing diagrams, and the associated pedagogy at the International Writing Across the Curriculum conference, the Rhetoric Society of America, and at the NACV (Academic Communication Skills Network) Expert Meeting at TU Delft.

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 of each rhetorical element. In this manner, Metalogon is both a feedback and peer review application, and also, over time, becomes a compendium of discipline and genre-specific teaching examples. This platform is now functional and was used for the first time in 3.014 and 21W.016 in the fall of 2017. We continue to make improvements, and will be using the system in more subjects in the coming year.

Overall, WRAP has had a very successful year in both the lab and the classroom, and continues to fulfill its mission to provide research-based and innovative communication instruction for the 21st century.

cmsw.mit.edu/wrap

PERSONAL UPDATES

After freelancing for seven years, **Katherine Bourzac** (S.M., Science Writing, '04) has started a job at *Chemical & Engineering News* as a senior science reporter.

Associate Professor of Literature **Eugenie Brinkema** is a fellow in Media Studies at the University of Amsterdam for 2018-2019, finishing her book on horror and love.

Josh Cowls (S.M. CMS, '17) started a Ph.D. at Oxford University's Internet Institute, as part of the Alan Turing Institute doctoral program. He will be focusing on the ethics and politics of algorithmic decision-making.

Sue Ding (S.M. CMS, '17) started a new role as Senior Programmer for New Media for the LA Asian Pacific Film Festival, received a CA Civil Liberties Public Education grant for an interactive installation at Manzanar National Historic Site, and wrote an article about AR and documentary for *Documentary Magazine*.

Kevin Driscoll (S.M. CMS, '09) and **Lana Swartz** (S.M. CMS, '09) welcomed a baby daughter. Eva Marigold Swartz Driscoll was born on August 25 at UVA Hospital in Charlottesville.

Sam Ford (S.M. CMS, '07) began a new role as Director of Cultural Intelligence at Simon & Schuster in late July.

In addition, he is continuing to work on several other projects through his consultancy. As a Knight News Innovation Fellow at Columbia University's Tow Center for Digital Journalism, Sam is working on projects about the local news ecosystem in NYC. With Andrea Wenzel at Temple University, Sam is also working on a project called "Report Local: Local News Capacity Building Models and Community Trust" through Tow and on innovation in rural journalism with partner publication *The Ohio County Monitor*, with the Tow Center and the Agora Journalism Center at the University of Oregon. His work on the Future of Work in Kentucky this year included a SXSW panel on "Reimagining a Disrupted Economy" and

Kentucky becoming the first region accepted to MIT's Regional Entrepreneurship Acceleration Program. *Spreadable Media*, which Sam co-authored, came out in paperback this year with a new afterword and was also released in Polish this year.

In December 2017, **Florence Gallez** (S.M., CMS, '12) published her first photo book, *Flow and Reflections*, a photographic journey through Russia, Cuba, Belgium, and the United States, whose photographs were first presented in her debut exhibition of the same name in Moscow in 2015.

Conor Gearin (S.M., Science Writing, '16) and Priya Gearin (née Maillacheruvu) married in April and will be fully moved in to Massachusetts this December.

In June, Professor **Heather Hendershot** wrote a piece for *Politico* on PBS's *Firing Line* reboot. At the end of the summer, *Politico* published her essay on TV coverage of the 1968 Chicago Democratic National Convention. And in September, her essay on *The Handmaid's Tale* appeared in *Film Quarterly*.

Abi (Nighthill) Knopp (S.M., Science Writing, '14) and husband Niall bought a house in Williamsburg, Massachusetts, and their son turned one in September. "We have had a busy couple of years," she says.

Hillary Kolos (S.M. CMS, '10) married long-time partner Matthew Schaffer over Labor Day weekend in western North Carolina.

Stephanie McPherson (S.M., Science Writing, '11) has published her first piece of fiction — a Sherlock Holmes story titled "The Affair of the Green Crayon" in the anthology *Baker Street Irregulars: The Game is Afoot*. She has another short story, "The Ghost of Luther Lashaway," due out in November in *Landfall: The Best New England Crime Stories 2018*.

Professor **Nick Montfort** has gone on two east coast book tours this year to promote the series of computer-generated books that he is editing, *Using Electricity*. He is also delighted to have, since January, a canine member of

his household. Pepys has chihuahua and Italian greyhound ancestry, and he visits the Trope Tank at times.

Lecturer **Micah Nathan's** forthcoming novel *The Fiend* has been excerpted. A short story from *The Fiend* will be appearing in the anthology *From Sea to Stormy Sea: Stories Inspired by 17 American Paintings*. The anthology is edited by Lawrence Block and will be published by Pegasus Books in 2019.

Aviva Hope Rutkin (S.M., Science Writing, '13) and **Alison Bruzek** (S.M., Science Writing, '13) married in August in Seattle.

Molly Sauter (S.M., CMS, '13) married Alex Leitch of Toronto.

Carles Sora, a postdoctoral fellow with the Open Documentary Lab, is now Academic Coordinator of the Audiovisual Communication degree at UPF, Barcelona.

This summer CMS/Computer Science and Engineering major **Jessica Tang**, '20, presented at the British Digital Games Research Association Conference. The paper she presented was inspired by her dorm wing and Professor T.L. Taylor's class Games and Culture. She delved into how players' play of rules is a powerful means of negotiating the meaning of a game and looked specifically into her community's play of the card game *Mao*. She says "the experience was intimidating, inspiring, and incredibly fun. I was surrounded by some of the most interesting and insightful people I've ever met and everyone just wanted to talk about games. It was an exciting experience to meet such incredible folks and be 'in conversation' with such a warm, nerdy community."

After working for nine months as a Ford-Mozilla Open Web Fellow at the Brooklyn Public Library and managing a project to launch a free community wireless network in Brownsville, Brooklyn, **Maya Wagoner** (S.M., CMS, '17) was hired as their first user experience designer, starting in August.

Professor **Jing Wang's** new book, *China's Gray Zone: Nonconfrontational Activism on the Social*

Web, will be published by the Harvard University Press next year. This past April, Wang received two patents — an invention patent and application patent — from the Bureau of Intellectual Property of the People's Republic of China for a "smart piggy bank."

Building on his experience editing hundreds of colloquium recordings, CMS/W Communications Director **Andrew Whitacre** is teaching at Tufts University this fall semester. His course "Podcasting: Crafting Audio Stories" features many guest speakers drawn from MIT, including radio and podcasting consultant **Rekha Murthy** (S.M., CMS, '05) discussing working with major outlets and MIT Women's League manager and former Moth producer Kirsty Bennett on first-person storytelling.

Following her graduation with a Ph.D. from the MIT Media Lab, **Jia Zhang** (S.M., CMS, '13; Ph.D., MAS, '18) is now a Mellon Associate Research Scholar at Columbia University's Center for Spatial Research.

Calvin Zhong, S.B., Architecture and Comparative Media Studies, '18, joined Kyle Branchesi, SMArchS, '19, and Darle Shinsato, SMArchS, '19, exhibited their work *In Rivers* at the Venice Biennale.

"The *In Rivers* project was an exciting collaboration and gave me the chance to tie together my studies in Architecture and Comparative Media Studies. Seeing our project amongst prominent scholars and architects was an honor and encouraged me to continue pursuing the intersection of the two fields. Special thanks to the MIT Department of Architecture, Comparative Media Studies, and Professor Sun-ha Hong for the guidance and feedback!"

Aquatic Distribution System in Rivers is part of the Institute of Patent Infringement, an initiative by Matthew Stewart and Jane Chew conceived for the Extended Program of "Work, Body, Leisure," the Dutch Pavilion at the Venice Biennale 2018, curated by Marina Otero Verzier.

It is currently being exhibited at the Victoria and Albert Museum at the 2018 London Design Festival and soon to be exhibited at the Het Nieuwe Instituut. ●

2018 THESES

COMPARATIVE MEDIA STUDIES

Aashka Dave, *When to Start Freaking Out: Audience Engagement on Social Media During Disease Outbreaks*. How do perceptions of risk contribute to sensationalized social media spectacles, and how might social media practices further such a practice? This thesis will explore sensationalism and gatekeeping through an examination of how news and public health organizations used social media during the most recent Ebola and Zika outbreaks.

Claudia Lo, *When All You Have Is A Banhammer*. The popular wisdom about internet moderation is, simply: moderators remove stuff. But there is plenty that they do that doesn't fit in such a simple definition. Through research with large-scale Twitch esports moderators, we can see that there are social and communicative aspects to their work. From making their own moderation tools, creating new policies and developing ethical standards for moderation, what else do moderators do when all we give them is a banhammer?

Mariel García-Montes, *Youth and Privacy in the Americas*. How do youth allies promote young people's critical thinking on privacy, in informal learning contexts in the Americas? This thesis look at ways that educators and allies work to think about, critique, engage with, and circulate ideas about youth online privacy.

Kaelan Doyle-Myerscough, *Intimate Worlds: Reading for Intimate Affects in Contemporary Video Games*. Leveraging affect theory and video game studies, I examine *Overwatch*, *The Last Guardian* and *The Legend of Zelda: Breath of the Wild* for intimate affects. I read for intimacy as a way to understand how sensations of vulnerability, the loss of control and precarity can become pleasurable in contemporary video games.

Sara Rafsky, *The Print that Binds: Local Media, Civic Life and the Public Sphere*. Local journalism is critical as a tool for informing citizens so they can be civically engaged and hold the powerful accountable, as well as keeping communities together.

Aziria Rodríguez Arce, *Seizing the Memes of Production: Political Memes in Puerto Rico and the Puerto Rican Diaspora*. This thesis seeks to understand how different groups of people in Puerto Rico and the diaspora deploy internet memes for political critique. In this work, I analyze three case studies focused on how Puerto Rican groups and individuals use internet memes to express political discontent, make calls to action, engage in catharsis, and seek political change.

Vicky Zeamer, *Internet Killed the Michelin Star: The Motives of Narrative and Style in Food Text Creation on Social Media*. Food porn has become mainstream content on social media sites and digital streaming sites. With this comes a change in status — from expert to everyone. As a result, the role of authority figures, in particular chefs, has changed. This thesis illustrates the convergences and divergences in the creation and consumption of food texts today.

SCIENCE WRITING

Laura Castañón, *The People and the Park: How a Small Mexican Community Created One of the World's Most Successful Marine Preserves*. A story of a community's struggles and triumphs in collaborating with scientists to prevent developments that might damage their marine ecosystem — providing valuable lessons for conservation efforts around the world.

Timothy James Dimacali, *From the Sea to the Stars: The Forgotten Journeys of the Philippines' Ancient Explorers*. By what means the Philippines' earliest settlers arrived in the archipelago is still a mystery. If they possessed seafaring technology, then modern Filipinos are heirs to a rich heritage of exploration, the story of which has yet to be fully told.

Fatima Husain, *The Deepest Paradox: Seafloor Mining and Its Future*. With commercial mining activities set to commence in the Clarion-Clipperton Fracture Zone in 2019, it is time to assess the paradoxical nature of seafloor mining: to mine the seafloor to support sustainable and efficient technological development on the land above.

Ashley Junger, *Can This Burger Save the Planet? Synthetic Beef and the Dream of an American Animal-Free Diet*. The partnership between two opposing strategies — local farming vs. biotechnology — reveal the promises and pitfalls of trying to reform the American diet away from meat consumption

Heather Mongilio, *The Invisible Scars: How Domestic Violence Victims Have Been Left Out of the Discussion on Traumatic Brain Injuries*. Traumatic brain injuries are one of the most common injuries in domestic violence, with studies finding that approximately 75 percent of women tested report at least one TBI. These injuries leave invisible scars in the form of memory problems. But despite the large prevalence of TBIs in the population, there is a lack of research, stunted by both funding and a lack of subjects. A lack of donated brains means chronic traumatic encephalopathy has yet to be found among domestic violence victims

Frankie Schembri, *The Promise and Perils of Personalized Learning: Keeping Students at the Center of the Ed Tech Revolution*. Examining one school district's success in creating personalized learning experiences for their students, as a case study for how other districts might approach homegrown disruptions of their own.

Kelsey Tsipis, *Fission and Fury in Perry, Ohio: One Town's Fight to Save Their Nuclear Power Plant*. Before much of America learn to fear atomic power, towns like Perry, Ohio, learned to love it. But like many nuclear power plants in the U.S., the Perry plant is aging, costly to maintain, and unable to compete with the nearly two-decade run of record-low natural gas prices. However, residents and town officials in Perry are not going quietly into the retrenchment of America's nuclear energy industry.

FALL 2018 EVENTS

Thursday, Sep 13, 5pm | E15-001

Civic Arts Series: Erik Loyer

Erik Loyer's award-winning work explores new blends of game dynamics, poetic expression and interactive visual storytelling.

Thursday, Sep 20, 5pm | E15-Bartos Theater

Thomas Allen Harris: "Collective Wisdom" Keynote

In conversation with MIT Professor Vivek Bald, critically-acclaimed filmmaker and artist **Thomas Allen Harris** will reveal his process, experiences, and unexpected outcomes working with communities in online and offline shared spaces and places.

Thursday, Sep 27, 5pm | 56-114

Collective Intelligence

Four MIT artists and scholars — **Agnieszka Kurant**, **Stefan Helmreich**, **Adam Haar Horowitz**, and **Caroline Jones** — discuss the idea of collective intelligence in relation to emerging technology, artistic inquiry, and social and cultural movements. CMS/W Professor Nick Monfort moderates.

Monday, Oct 1, 5:30pm | 6-120

"A Suitable Girl" screening with director Sarita Khurana

Winner of the 2017 Tribeca Film Festival New Director Award, "A Suitable Girl" follows three young women in India struggling to maintain their identities and follow their dreams amid intense pressure to get married.

Thursday, Oct 4, 5pm | E15-001

Civic Arts Series: Daniel Bacchieri

Brazilian journalist **Daniel Bacchieri** and his StreetMusicMap collaborators are exploring the creative possibilities of collective storytelling through performance.

Thursday, Oct 18, 5pm | E15-001

Civic Arts Series: Marisa Morán Jahn

Marisa Morán Jahn is a multi-media artist, writer, educator and activist, whose colorful, often humorous uses of personae and media create imaginative pathways to civic awareness of urgent public issues.

Thursday, Oct 25, 5pm | 56-114

Sasha Costanza-Chock

Sasha Costanza-Chock is a scholar, activist, and media-maker, and currently Associate Professor of Civic Media at MIT. Their work focuses on social movements, transformative media organizing, and design justice.

Thursday, Nov 1, 2pm | E51-095

CMS Graduate Admissions Information Session

Meet faculty and research managers, learn about the program, and ask questions. Registration required at cmsw.mit.edu.

Thursday, Nov 1, 5pm | 56-114

Alumni Panel

In our annual alumni colloquium, hear from 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. This colloquium follows the day's graduate program information session.

Thursday, Nov 8, 5:30pm | 32-123

Brian Michael Bendis: The 2018 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 2018 Julius Schwartz lecture.

Thursday, Nov 15, 5pm | E15-001

Civic Arts Series: Myron Dewey

Myron Dewey has pioneered the blending of citizen monitoring, documentary filmmaking, and social networking in the cause of environment, social justice and indigenous people's rights.

Thursday, Nov 29, 5pm | 56-114

The Language of Civic Life: Past to Present

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.

Next semester: May 17-18

Media in Transition 10: A Reprise – Democracy and Digital Media

How are concepts of participation, trust, and democracy are increasingly fraught, essential, and powerfully repositioned. How will our news media look and sound in the next decade? What can we learn from news media of the past? What can international perspectives reveal about the variability and fluidity of media landscapes?

A full schedule, including special events, is available at cmsw.mit.edu/events. Miss an event? Catch up at cmsw.mit.edu/media.

RECENT PODCASTS AND VIDEOS

Making Documentary: Videos from 2018 science writing graduate students

cmswm.it/making-documentary

Learn about how the earth got its oxygen, about supercooling atoms... and how to dye eggs.

Imperial Arrangements: South African Apartheid and the Force of Photography

cmswm.it/kimberly-brown-podcast

Kimberly Juanita Brown focuses on U.S. news media coverage of apartheid in the last year of its existence, and the images that anchored viewers' interpretation of the event.

Between Participation and Control: A Long History of CCTV

cmswm.it/weber-podcast

Anne-Katrin Weber explores the politics of CCTV, highlighting the adaptability of closed-circuit technologies, which accommodate to, and underpin variable contexts of media participation as well as of surveillance and control.

The City Talks: Storytelling at the New York Times's Metro Desk

cmswm.it/rueb-podcast

Emily Rueb, a reporter for The New York Times, shares insights gained in bursting boundaries of traditional storytelling for The New York Times's Metro desk — weaving video, audio, illustrations and text across multiple platforms.

Music Fandom and the Shaping of Online Culture

cmswm.it/baym-podcast

Nancy Baym: "By the time musicians and industry figures realized they could use the internet to reach audiences directly, those audiences had already established their presences and social norms online, putting them in unprecedented positions of power."

The Tip of the Iceberg: Sound Studies and the Future of Afrofuturism

cmswm.it/carrington-podcast

andré carrington's research on the cultural politics of race in science fiction radio drama aims to expand the repertoire of literary adaptation studies by reintegrating critical perspectives from marginal and popular sectors of the media landscape into the advancing agendas of Afrofuturism and decolonization.

The (Non)Americans: Tracking and Analyzing Russian Influence Operations on Twitter

cmswm.it/freelon-podcast

Deen Freelon on addressing the challenges to analyzing Russian political influence operations.

Algorithmic Music: An Experience Composing with WolframTones

cmswm.it/algorithmic-music

Andrew Whitacre on using algorithmic music generation in WolframTones as the inspiration for a full, human-sounding composition.

ICTs for Refugees and Displaced Persons

cmswm.it/maitland-podcast

Carleen Maitland introduces the terms "digital refugee" and "digital humanitarian brokerage" as she previews her new edited volume "Digital Lifeline? ICTs for Refugees and Displaced Persons".

From Augmented to Virtual Learning: Affordances of Different Mixes of Reality for Learning

cmswm.it/klopfer-podcast

What theories and evidence can we generate and build upon to provide a foundation for using mixed reality technologies productively for learning?

Cloud Policy: Anatomy of a Regulatory Crisis

cmswm.it/jennifer-holt

Jennifer Holt examines the legal and cultural crises surrounding the regulation of data in "the cloud."

Mapping Climate Change: Contested Futures in New York City's Flood Zone

cmswm.it/koslov-podcast

Liz Koslov on how in New York City hundreds of thousands of people and billions of dollars in property lie in a high-risk flood zone, but FEMA flood maps minimize the risk.

The Mediated Construction of Reality: From Berger and Luckmann to Norbert Elias

cmswm.it/nick-couldry-podcast

Nick Couldry addressed the challenges of social analysis in the face of datafication through the use of materialist phenomenology, particularly the concept of figurations.

Platforms in the Public Interest: Lessons from Minitel

cmswm.it/minitel-podcast

Systems like Amazon, Google, and Facebook are so massive that it's easy to forget that the digital world was not always like this. Kevin Driscoll, '09, and Indiana University's Julien Mailland discuss how France's 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.

Ready for more podcasts and videos? Catch up, or subscribe for just-posted ones, at soundcloud.com/mit-cmsw and cmswm.it/cmsw-youtube.

Looking for a back issue of *In Medias Res*?
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