SPECIAL TOPIC

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TAKING ACTION IN A CHANGING WORLD

In the last hours of CHI 2017, a group of researchers from universities and businesses across the northern hemisphere sat down together to consider "Taking Action in a Changing World" [1].

The title of the special interest group (SIG) is significant; it speaks of having an impact, of the politics on which we wish to have an impact, and also the dynamism of the structures and systems around us. There is no special mention of technology. In other words, it is a departure from business-as-usual HCI.

In the SIG format, there is no panel or talk. A short, thematic introduction is often followed by breaking into discussion groups to address topics solicited from participants. Our hosts used this format. What follows here are personal accounts of the need for action from a range of people attending this SIG, speaking of their motivation, different forms of action, and the reason it is necessary.

The event split into four groups—research possibilities, CHI engagement and outreach, alternative meeting formats for the CHI conference, and something simply labeled "Going Rogue." I was the author of an alt-CHI paper, "Design for Existential Crisis" [2], which was discussed among the "rogues," so my account starts there.

But included here are also four other accounts from attendees: Two deal with the politics and practicalities of running a major HCI conference; another two frame these within the wider political climate.

Paul Strohmeier discusses the travel ban and what telerobots can and cannot provide for absent delegates. Maria Angela Ferrario looks at what other forms our CHI conferences could take. Chris Frauenberger talks of the history of technology development and our ethical duties. Jenny Preece asks what HCI research can do to steer the world toward environmental fairness. The account I give addresses the personal in the political, how we incorporate action into our professional lives, and how we protect our energies and decide our direction when so much is changing so fast.

Between us, the authors look both forward, to where we want to be, and backward, to what is familiar in this new situation; inward, into our community, and outward, to impacts beyond it.

A note on style—we have chosen to write personal accounts and aggregate them rather than trying to produce one response to the question of how to take action. This is also political. We are modeling the plurality of voices needed to keep a lively debate going and resist settling on solutions too soon and too narrowly. This aggregation is an alternative to consensus and synthesis. Through a process of collective editing, we have enhanced each other's work without looking to find a single tone or message.

What connects all these voices is a sense of openness to change, a willingness to discuss futures as something we actively create, an awareness of the politics of creating them, and care for our conference and our world. There is also a belief that our research and practice is a form of action

and that we need to be mindful of the direction we take and how we use our energies for change.

Ann Light, University of Sussex

Who Are We to Make Change?

I was drawn to discuss "Taking Action in a Changing World" [1] as the bookend to a week at CHI 2017 that had begun, for me, with a passionate alt-CHI paper on designing at a time of great uncertainty. On that Monday, I had been talking about the need for new technology-design values (being attentive, critical, endlessly different, and in it together) to counter the environmental devastation, loss of meaning, and growing inequalities of our time [2].

In this SIG, I surmised that I would find my peers talking about social change and how to make a difference at a moment when it is hard to know which direction to take—at least, that was my expectation. As usual with politics, there were a number of agendas in the room. When we saw them all written up on a flipchart, a group of us broke away from the suggested topics and formed the "Going Rogue" table. I didn't lead this insurrection, but I was a willing party to it, and it occurs to me that if I could vote for such a group in any real way in Britain (where we have a first-past-the-post system), I surely would. My political party is the party of difficult questions, gentle disruptions, and transformative techniques. Those are what infuse my projects and papers. That is why I am an academic.

In other words, rather than choosing a creed, I would vote to keep societal values open and available for progressive change. Given that the future is, by definition, unknowable and nonetheless something that people

greatly influence, I see one of my jobs as promoting plurality and critical thinking, and challenging unquestioned assumptions in technology design. My core argument is that we resist stultification and the exaggeration of current iniquitous trends by designing our digital infrastructure flexibly, not just in terms of function, but also to support evolving value systems and promote mutual care. If we design our digital life for our unanticipated potential, we allow for societal learning and, ideally, a growing humility about our place on the planet. That ambition is what unites my professional life and my personal beliefs.

The SIG meeting started with a reference to two panels that addressed policy at this CHI conference ("Policy Impacts on the HCI Research Community" and "Research Ethics in HCI—a Town Hall Meeting"). Much of this was focused on CHI community policy, such as what the conference could have done about President Trump's travel ban, which was in the works during the run-up to the 2017 event (see Paul Strohmeier's account here).

We have had CHI panels to consider policy before (Ben Shneiderman's work on raising HCI issues with the U.S. government is a notable example). To discuss only the panels at CHI might be to suggest that politics at the conference is bolted on, not integral. In many years that has felt true. When Carl DiSalvo and I ran a 2010 panel on "HCI, Politics and Communities" [3], we were sailing against the prevailing wind: There was a good audience, but we had made the first explicit mention of politics in a while. HCI, the discipline, chooses an apolitical path, making tools function well and generally downplaying the purpose of systems in favor of their performance. It has a history of serving usability and innovation. Now, at CHI in Denver, in a year when the U.S. political administration had shocked the community— and much of the world—with its xenophobia and isolationism, many people were seeing their deeply held liberal beliefs scorned. I had corridor conversations about the exploitation of automation in political lobbying and the consequences of politics on design choices throughout the 20th

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century. But even more significant for the conference was the new wave of papers on notably political topics—papers written a summer earlier, when no one knew the outcome of the U.S. elections. If the conference as a whole was still a celebration of the apolitical pursuit of digital technology, it looked increasingly challenged from within. Papers on wage theft (employers failing to pay their staff for their time), the solidarity movement in Greece, and designing for indigenous perceptions of time found space in the schedule alongside more traditional offerings on values and appropriate technologies for development contexts. One moving study showed that city officials ignored forum discussions about crime in one neighborhood, while participating in those areas that were already better resourced. There was discussion of why class and race are so rarely mentioned in HCI studies and whole sessions on data culture and social justice. This new wave of papers was politically explicit about the role of technology, the potential effects on people's lives, and the need for action. These talks called technology makers to task.

My own presentation, which addressed technology's potential to humiliate, strip out meaning, and even destroy humanity [2], resonated widely; a number of people approached me during the following days to say it connected with their own feelings of concern. Indeed, it was this sense of alignment with the theme of the SIG that led me to propose to several people that we meet there and continue our conversation. For me, then, this discussion session was the crystallization of much that had been discussed throughout the conference.

In our "rogue" group (Figure 1), we spoke about our own experience as researchers with ambitions to make positive change through, yet beyond, academic life. We spoke about contradictions in the desire to design tools for better living, with the nagging acknowledgment that any tool can be made to work against fairness and respect, and that all new production of software and hardware sequesters resources (and, thus, futures) from others. We talked about the need to be mindful of life in other parts of the world and in times to come—and to

Figure 1. Student volunteer Layne Hubbard's drawing of the themes from the "Going Rogue" table.

promote the interests of all life, not only that of humans. We reflected that there were commonalities between our time and other moments in history (see Chris Frauenberger's account here), but that there were also significant differences, such as a sense of a full world and expiring resources. We thought about how to balance a political agenda with a professional job and the conflicts this creates.

We began with dreams—those most personal of events—and the crisis nightmares that some people in the group were having as disconnects in experience across society become more visible. We discussed what it feels like to recognize a crisis and how recent political and environmental events had made more people aware that unwelcome change is happening (increases in poverty; in refugee numbers within and between countries; in people looking for saviors and others to blame; in extreme weather events; in anxiety itself) and that positive change is needed to mitigate all these trends. We identified a related development: increasing uncertainty about how to have the right impact as change escalates, linked to questions about our agency as people with an ethically progressive agenda at a time of populist heroes and villains.

We acknowledged that many people are living with crisis as an integral part of their world, and it is only relatively protected communities, especially in Northern and Western Europe and North America, that have avoided such high levels of uncertainty during their lifetime. Now we too were getting a feeling for how fragile peace, health, and prosperity can be and the need for collective action to protect them.

My own argument [2] earlier in the week had made the case for respect and fulfillment to help us through these more uncertain times and give us a sense of meaning that, of itself, promotes healthy survival. I furthered that argument in our group by suggesting that if everyone felt they had gainful labor (on whatever economic model we could afford), then respect, fulfillment, and a sense of meaning would evolve; and that such work could newly be found addressing climate change and repositioning humankind as ecological custodians. (Fulfillment has long come from activities such as helping out in the community, raising a family, and/or doing a job that makes a necessary contribution.)

I do not recall if I added that gainful labor cannot be exploitative. I will say here that work that feels meaningful is not something one can force out of others; it is done from a sense of its own logic and reward. Belief that we are facing problems that are bigger than any one of us, that we are in it together, and that there is work to be done (to protect what we love) has fueled wide-scale sociopolitical movements to achieve change before. For instance, it led to the birth of the welfare system in the U.K. after World War II. This sense of collective agency—and the sustained

pressure it can create—is needed again.

We looked at what working to this end means in our own lives. We asked ourselves if we have freedom to pursue activism as an innate part of our work and whether we have a conflict with our own professionalism. The tensions we identified were not just with the goals of our institutions, but also within our careers. Taking action can be raw and messy; it suggests privileging change in the moment over long-term research analysis. It concerns itself with social relations as well as dispassionate findings. Should we be acting on the conditions we find or delivering material of use to policy making? What combination might be most effective? What if we feel it is methodologically unsound to make change as part of our practice? Can we square that with our research training? Do we "take action" as part of our work or bracket it into another part of our lives? Can we use our professional skills as researchers to make better change? And, like everyone, how do we resist being entrenched in our own bubble and work to see the range of views and approaches around us?

Contemplating this slew of questions, we recognized the value of our insight as researchers into the politics of technology and of its design and development. We thought about areas that needed sociotechnical insight, such as the impact of social media on politics and the power of algorithms to shape people's experience. We talked of autonomous vehicles and automated processes and what their likely impact would be (not, we noted, an increased sense of meaning or fulfillment as yet more jobs disappear in post-industrial nations). We discussed plurality, conflict and control, and managing the different priorities of employers and staff; Republicans and Democrats; the U.S. Midwest and the major coastal cities; Europe and America; and the East versus the West. We considered how far we had come from the nuclear crises of the mid-20th century and how near we were to such so-called solutions being on the agenda again.

And then we returned to asking about our own professional situation. Were we all equally free to develop an explicit agenda to make change? Some of the people sitting at the table work for an academic institution, some for a commercial enterprise—how does that affect our freedom of determination? Does the country in which we operate also affect our perceptions of what is appropriate? One participant, who had considered going part-time to fight the rise of right-wing populism, summed things up with: "Do I quit my job? Do I work part-time to fight fascism? No. Fight fascism on my employer's budget!" Others considered what that would mean at their institution.

Relating the big questions of social, environmental, and economic sustainability to our individual ambitions and the everyday of what we do for a living allowed us to see the politics in our personal choices. It pointed to the impact of our concerns on ourselves as well as in the wider arena that we wish to influence. In other words, our table looked at *personal* sustainability among the other factors, though we did not articulate it as such at the time.

This was interesting for me to observe for a couple of reasons.

In giving the alt-CHI paper on existential crisis earlier in the week [2], I had opened by saying that I *had* to write the paper. I explained that it came out of a need to see past a state of emotional impasse to a new direction for my work. My co-authors felt similarly.

This self-reflexivity is important. We are not being self-indulgent or methodologically flawed in writing ourselves into the account of our change-making: We are being consistent with what action research requires of us. Noting our starting points, our limitations, and our priorities is both good research and necessary political candor. We make judgments all the time and need to be clear about the position from which we do so.

More than that, I was doing what I needed to do to be able to move forward in my thinking. Self-care is both a form of prefigurative politics (i.e., it starts to create the world we want) and a necessity for continuing to have an impact, yet it is persistently left out of consideration in social change-making and conversations about it. There is a lot of unseen choreographing and caring as part of fixing things and making them workable [4]. Saving the world is another form of invisible labor [5]. I can draw on my own experience as to how easy it is to overlook the work of personal sustainability; I've also seen it in others. In a short study I did on social activists' self-care when involved in a series of projects about the everyday design of sustainable neighborhoods, I found that the need for it usually only became visible too late, when serious fatigue or disenchantment loomed. (Typically, this self-care study is one that I have yet to write up—there is always something more pressing to do.)

So I will end with a discussion of what we need for ourselves.

As well as campaigns and colleagues, we need things that keep us grounded, act as a break, and shore up a sense of purpose. For me, it is growing things. I recall the point of existence when I see green shoots. Life and death, hope and destruction, seasons and cycles are all there, coming up out of the ground. Not only is it good to get my hands dirty and away from the keyboard, but the custodianship involved also offers a powerful metaphor that guides my thinking about life and work. We all need these go-to moments and metaphors to inform other parts of our lives. I like to read political economist Jane Bennett, who says, "One must be enamored with existence and occasionally even enchanted in the face of it in order to be capable of donating some of one's scarce mortal resources to the service of others" [6]. We improve our potential with reflection, connection, and nourishment, in spite and because of the new uncertainties and the fear that our efforts may go in the wrong direction at a time when nothing is clear.

Our table ended on a last question: "Can we be the new seeds?" We concluded that we always are.

Like other seeds, we benefit from a wholesome environment and an open sky, but we can make do. Some of us can force our way through hard earth or urban concrete to question injustice, challenge unsustainable practices, and produce enough flexibility of thinking and making to give people new meaning as things change and keep changing.

Researchers are not bystanders. Design researchers in particular have the process of opening up and changing the world enshrined in both method and outcome. Let's act on it.

● **Ann Light,** University of Sussex

"I Was Just the Scientist" Will Not Be Good Enough

Coming to the CHI conference and co-organizing a workshop on "Values in Computing" [7], I already was primed for what I felt was a necessary response from our field to recent societal and political shifts. Affected, perhaps, by this expectation, I felt that there was an activist undercurrent detectable at a conference that usually circumvents any perception of taking a political stance. Some great talks and SIGs then really gave voice to a discontent about where society is headed and what our own responsibilities in this process were.

Thinking about the role of technology in turbulent times made me turn to history, looking for possible lessons. In what follows, I aim to make the case for a responsible science by looking across historical periods, from the end of the Renaissance to the present day.

The scientific revolution and the era of the Enlightenment gave rise to the ideas of modernity, posing direct threats to the then archaic rule of kings and religion over society. Rational thought and technological optimism challenged traditional power structures and fueled the hope that reason and science would make the earth a better and fairer place. No moody king could argue against the laws of physics when they had so decisively been shown to be true in experiments. Then the industrial revolution began to demonstrate how technological advances merely replaced old power inequalities with new ones, as exemplified by the dire situation of the workers in England's cotton industry at that time. World War I not only brought an end to the crumbling monarchies and political systems of the old world, but it also put a significant dent in the technological optimism. A misunderstanding was cruelly resolved: Technological progress brought cars and the telephone but also turned out to be the key to mass murder in this first large-scale industrialized war. Men who set out to fight heroically for their national pride perished in the millions in trenches at the hands of machines. With large parts of Europe in ruins and millions dead, wounded,

and traumatized, new political ideas needed to fill the institutional void. National identities were destabilized, and the economic costs of the war for all, winners and losers, were so substantial that civil unrest was inevitable. The hope for recovery again rested on modern ideas in which rational human beings maximize their productivity as part of a large, well-oiled machine called society. In the West, capitalism appeared to work until the Wall Street Crash of 1929, and the ensuing global economic crisis dealt the final blow to the weak political systems in Europe, providing the fertile grounds on which fascism could take hold. In the East, the communist ideals of such a machine proved impossible to realize without turning the ruling structure into a ruthless dictatorship.

It would be overly simplistic to compare this period with today's circumstances; however, I argue that there are lessons, particularly from the period between the two world wars [8], that are relevant for us as academics, scientists, creators of technologies, and members of society. In the current political landscapes, we see inequality in wealth and opportunities rising to levels well beyond those of 100 years ago. Identities are being reframed and destabilized on individual and national levels; this trajectory is worrisome, as large parts of society

are anxious about their future and disenfranchised from traditional political systems. Democratic elections have reached a tipping point where majorities are unpredictable, with an electorate that is increasingly vulnerable to manipulation by populists, who reduce complex politics to basic human instincts, most commonly fear.

As in years before, technology plays a role—and, arguably, a more pivotal one today. Modernity still projects a conception of science and technology into our age that it is rational, objective, value-free, and detached from human intention. The two world wars demonstrated in the worst possible way how science and technology were commodified as a resource that was required to wage war: Rockets hit faraway targets; a single bomb decided a conflict of nations; and the radio became a medium for mass propaganda—or "fake news." But, as Melvin Kranzberg puts it, "Technology is neither good nor bad, nor is it neutral" [9]. In a significant shift, postmodern thinking was increasingly critical of the ways in which science aspired to be objective, in particular in relation to society. The suspicion that science itself might be a social construct that is neither rational nor value-free gained traction. Scientists increasingly became aware of their wider responsibilities, for

IMAGE BY RYAN RODRICK BEILER / SHUTTERSTOCK.COM

example, in the Russell-Einstein manifesto of 1955, in which 11 of the world's leading scientists, nine of them Nobel laureates, appealed to the primacy of humanity in the face of the atrocities of the war. More recently, in 2015 and in light of the Snowden revelations, Phillip Rogaway [10] argued that cryptography needs to become not only a field that solves mathematical puzzles, but also one that engages with its moral dimension as a political tool of power.

Today, digital technology reaches into every corner of our lives. It shapes public discourses, mediates human interactions, and changes private behaviors. Urbanism, migration, hyper-connectivity, digital economies, and shifts in gender roles are speeding up a spiral of uncertainty that is again fueling economic inequalities and a perceived loss of familiar identity structures. It would be naive to think that any one of these is the causal root of the societal shifts we are seeing, but, more than in the years before, technology plays a role. Again, complex politics are reduced to baser human instincts—sometimes in a tweet. What I believe can be different, though, is that we might, in time, pick up on the critical thinking that points to the responsibilities we have as scientists or technologists. Although the prevailing science paradigm still clings to rationality and objectivity, I argue that now is a good time to become a scientist activist. There is, and should be, room for scientists and technologists to openly bring their beliefs and values to the table, and to be part of the discourse about how their work can contribute to a society and a world in which we would want to live.

Our current academic culture does little to encourage science activism. Being a scientist and an activist is still widely seen as separate; one is professional life, and the other is private life. But saying (or pretending) "I was just the scientist" will not be enough

to deflect the responsibility of people creating disruptive digital technology, be it in industry or in academia. A culture in which responsible science and innovation are valued as a common good and rewarded as excellent work needs to replace the "because we can" mindset that maximizes profit or citations.

🔸 **Chris Frauenberger,** TU Wien

Environmental Fairness and Justice: A Role for Human-Computer Interaction

One of my interests in attending the "Taking Action" SIG was what I've been calling *environmental fairness*. Scientists present overwhelming evidence that the earth's climate is changing and that humans are partly to blame. Greenhouse gases produced from burning fossil fuel, especially coal, are changing the atmosphere. Human activity is displacing other organisms, destroying forests, and polluting rivers and oceans. Fresh water is becoming scarce in many parts of the world, leading to hardship and death. In the words of Naomi Klein [11], climate change "… changes everything."

The current economic challenges facing the world are modest compared with climate change devastation, which disproportionately affects the poor and the other creatures that share planet Earth. Fairness and justice must include protecting and nurturing all humans, not just the rich and super-rich. It also must protect other organisms. How can human-computer interaction (HCI) specialists contribute to creating a fair and just world?

HCI specialists contributed to creating the outstanding technologies of our time—mobile and smart phones, the Internet, the World Wide Web, fast search engines, potent visualizations. Currently, the Internet of Things

and the Quantified Self challenge our imagination. The success of social media such as Facebook, Weibo, and Twitter, crowdsourced ride-share systems like Uber and Lyft, and room-sharing systems like Airbnb are radically changing human behavior and social interaction. While such systems have downsides (e.g., eliminating traditional jobs), they may point the way to future innovations that can contribute to creating environmental fairness. Here, I propose and discuss three ways this could happen: *supporting activism across the world*, *reducing the impact of fake news*, and *encouraging citizens to steward water and protect species*.

Supporting activism across the world. Through our voices, amplified by social media and social networking technology, we can campaign for policies designed to tell the truth about climate change. Some of these systems enable activists to create and distribute petitions via e-mail, Facebook, and other social media.

Petitions that present a straightforward description of the issues, a form that is auto-completed to speed completion, and a status bar showing how many other people have signed the petition, followed up by a thank-you note to the signer, are effective in many parts of the world (e.g., CREDO.com in the U.S. or 38degrees.org.uk in the U.K.). This text-oriented approach can work well, but there are challenges. Writing effective petitions requires skill, but well-designed guidance and templates can help. Other challenges include accessing long descriptions on small devices via slow or unreliable networks that are expensive to use. Supporting activism among people living in remote parts of the world who speak rare languages can be even more difficult. Yet these may be some of the most important communities to engage in environmental activism, partly because their land is often sought for farming, logging, mining, and oil drilling.

Research by Muki Haklay and his colleagues at University College, London, provides an example of how HCI specialists can work with remote, low-literacy communities [12]. By adapting participatory design techniques, this team of researchers worked closely with Pygmies in the Congo to develop iconic interfaces that are natural to use and enable

There is, and should be, room for scientists and technologists to openly bring their beliefs and values to the table.
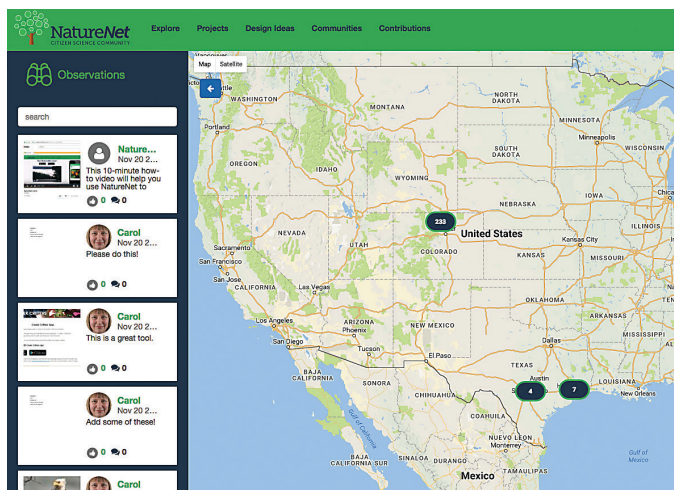
Figure 2. The Explore screen of NatureNet showing contributions, including thumbs-up ratings and a symbol indicating a design suggestion. A map indicates the number of contributions from different localities. (https://www.nature-net.org/explore)

Figure 3. Project page with some recent contributions. (https://www.nature-net.org/projects)

the Pygmy community to discuss environmental challenges.

Reducing the impact of fake news. Fake news is particularly insidious when used to distort scientific information to promote a political agenda for the benefit of extraction industries such as fracking, oil drilling, and coal mining. Researchers have a responsibility to ensure that platforms like Facebook and Twitter develop and adhere to rules that distinguish fact from fiction. Initiatives such as Facebook's plan to work with fact-checking organizations and to hire 3,000 people are promising, but the company will need HCI design expertise to 1) monitor what is actually happening; 2) inform and present their findings to users, journalists, and social media managers; and 3) give users control to make and report their own observations. For example, new designs could allow social media users to flag questionable posts, track sources, or slow the dissemination of unverified claims.

Photo-manipulation software raises doubts about image authenticity, but emerging technologies could be even more troubling. For example, research that integrates morphed facial expressions with morphed speech for gaming systems, though ingenious, will likely be used to distort presentations by newsreaders and politicians. HCI can assist in holding platform owners accountable for the misuse of their services, and for educating citizens so they can question the information that they encounter online, especially when it seems extreme or out of context.

Encouraging citizens to steward water and protect species. Fresh water, the essence of life, is becoming scarce in many parts of the world due to pollution and overconsumption by industry as well as citizen demands for ever more lavish lifestyles. Millions of people have little or no clean drinking water, but this problem is especially pernicious among the poor. Climate change will increase water inequality in developed as well as developing nations. The intricate web of interdependence linking water, health, economic wealth, poverty, and survival is fragile [11]. Furthermore, as water becomes scarcer there will be crop failures, outbreaks of unexpected diseases, and large-scale migration similar to that experienced in Europe due to the Syrian conflict.

HCI research that enables individuals to monitor their water usage already exists. How can we scale such concepts and systems for monitoring water consumption across large areas within a country and across countries? One way may be to engage local communities in monitoring and stewarding their own water usage and the health of their local watersheds. This requires leadership from within the community, supported by trusted local organizations.

A pilot study in eastern Maryland and the District of Columbia illustrates how this concept might be operationalized to work at scale. The Anacostia Watershed Society trains local leaders to become watershed stewards through the Watershed
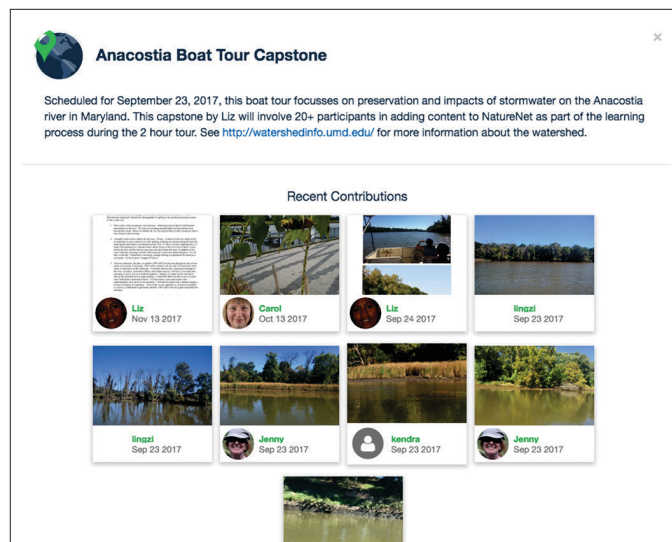
Stewards Academy (anacostiaws.org/ programs/education/watershed-stewards-academy). In turn, the watershed stewards leverage their skills by engaging and leading local citizens in storm-water-management projects. A powerful example is a plumber educator who trains over 100 apprentices per year in drainage management. WSA is working with HCI specialists, including our research team, to develop crowdsourcing mobile apps, websites, and large-screen displays for collecting and sharing data, experiences, and resources, and for managing their projects (Nature-net.org). We are hoping to leverage the collective power of local projects to share successes and challenges while maintaining the enthusiasm of place-based local activity. Figures 2 and 3 show screens from the NatureNet website. This is a model for what could happen, led or supported by HCI specialists more broadly.

It's not just humans who are suffering from climate change. A study by Ceballosa and colleagues, published by the U.S. National Academy of Sciences, called the current decline in animal populations a "global crisis" [13]. According to the Center for Biodiversity (biodiversity.org), we are in the sixth extinction in which the rate of species extinction is 1,000 to 10,000 times higher than in pre-industrial times. While this may seem less important than the suffering and indignity of human poverty, all organisms, including humans, are intricately linked within their ecosystems. Consequently, the loss of some species leads to imbalance

in these natural systems, which have evolved slowly over years and are ill prepared to respond quickly to change. Such imbalances can adversely impact human lives. For example, a surge in white-tailed deer that carry ticks responsible for spreading Lyme and other diseases is predicted to increase the incidence of these diseases among humans living in the eastern U.S. this year. Deer populations are out of control due to the removal of predators that would normally keep their populations in check.

Millions of citizens from across the world are working with scientists on citizen-science projects to track changes like these, and other changes in the distribution of organisms, migration patterns, poaching, wildlife trafficking, and more. These citizen-science activities offer interesting challenges for HCI specialists to create useful, well-designed technologies for important projects. I have been working to develop and collect understanding in this area: For an overview and suggestions of ways to become involved in HCI and citizen science see [14], and for promoting citizen science via effective smartphone design see [15]. HCI specialists can contribute to environmental fairness and justice across the world in many ways, but we must be expedient and creative to avoid existential crises [2].

⬡ **Jennifer Preece,** University of Maryland

There's No App for That (and Not a Robot Either)

I got involved as an organizer of this SIG because of something that bothered me: finding a technological fix for a political problem. This is an issue that I find troubling within our community in general, but I was especially irritated by it during the lead-up to the CHI 2017 conference in Denver and the discussions surrounding the travel ban.

We are problem solvers. Human-computer interaction as a discipline is not just the study of a topic; it is also the practice of finding solutions to problems we find. We love solutions. Many CHI papers briefly outline a problem before presenting its core contribution: the solution. We love solutions so much

that sometimes CHI papers provide solutions to unknown problems. (I am most definitely guilty of that.) Through my own prototyping experience, I've developed countless solutions. And I get excited when I meet someone who has a problem because—who knows—maybe one of their problems is something I already have a solution for.

I believe something like this happened this year during the lead-up to CHI. For some years now there have been telerobots at CHI. Having them made sense. After all, where better to try out such a relatively new technology than at a conference where people research how best to use new technologies? While I am sure there were people who benefited greatly from these devices, to me their presence just highlighted how much work needs to happen before telerobotic visitors can engage with a conference on similar footing as people physically present. I never was able to see them as a solution to anything. I experienced them as a noble, but limited, first attempt to provide remote access.

Then the unthinkable happened. The new president of the U.S. spent the months before the CHI conference attempting to introduce a travel ban that would stop people from several nations from visiting the U.S. While visa problems and financial barriers have traditionally made it hard for many to attend, the travel ban created a new and unprecedented barrier. Attending the conference became

difficult to impossible for a new swath of colleagues. Thus, the CHI organization team was—through no fault of their own—put into a position in which they would struggle to honor their own anti-discrimination guidelines.

But it seemed we had a solution already in place: the telerobots that still had not quite found their role within the CHI conference. We were lucky enough to be able to offer an existing solution to the new problem. Not only might this enable people affected by the travel ban to participate at CHI, but it also made for a beautiful narrative. *Wired*, for example, wrote about it with the headline "Banned from the U.S.? There's a Robot for That" [16]. And if there is one thing to like even more than a good solution, it's a good narrative.

I was disappointed by this chain of events. Following the travel ban, the ACM published a beautiful statement, stating that "freedom of thought and expression are central to the aims and goals of the ACM," and asserting that freedom of movement is a requirement of such practices [17]. I felt that this statement provided the organizers of CHI with strong backing to act upon this belief. While the CHI conference chairs went through considerable efforts to minimize the negative impact of the travel ban, the response remained on a technological level. CHI, too, released statements regarding the plan, but instead of speaking up in support of freedom of movement, the CHI organization team offered telerobots

as a technological fix [18]. In doing so, they fell right into a CHI way of dealing with problems that I find problematic: To solve problems, we typically operationalize them. To understand how people touch an icon, we might reduce the problem to a ballistic motion of the fingertip. But this doesn't work well if the problem is multifaceted. To solve the problem created by the travel ban, we can operationalize it as "some people cannot travel to CHI." However, this ignores that a policy was introduced that attacks the very core values of the ACM and that a group within our community is being discriminated against.

Providing telerobots fixes the operationalized problem of viewing the conference but does not fix the part of the problem that is more difficult to grasp. It gives part of our research community the dubious choice between not attending or attending as a second-class citizen. The CHI organization dealt with the travel ban as a logistical problem, ignoring that part of the issue was political.

Attending an event as a telerobot is nowhere near an equivalent experience to attending in person (yet?). This becomes obvious if we think about our reasons for attending a conference. Pragmatically speaking, there is no real reason to do so. We can read the papers at home. If we have questions we can write e-mails. However, this is not the full picture. Attending a conference is a public performance and an exercise in serendipity. It allows us to observe how our colleagues publicly react to our or other people's ideas. It allows us to reflect on the questions asked and answered afterward. It allows us to walk up to a stranger and say, "Hey, I was happy you asked that question. I had it too. What kind of research are you involved in?"

Equally important, or possibly even more important, is the informal program outside the conference venue: for example, the opportunity to catch up over lunch with a former colleague who brings along a stranger and says, "Have you met each other? I think you'd have a lot to talk about." Also, conferences are fun. There is nothing quite like a research collaboration that originates after an evening of dancing and talking and searching for food together at 2 a.m. These informal aspects are what bind us as a community. And while telerobots can ask a question, I experience them as anonymous figures controlling a screen on wheels, instead of as a colleague I might recognize again at another event. I have yet to meet up with a telerobot at a brewery to discuss the merits of cucumber beer.

In short, suggesting telerobots as the sole solution to the travel ban disregards many of the reasons why this ban is problematic, and it ignores the plethora of ways in which attending a conference brings our community together.

In the *Wired* article [16] it was suggested that providing the robots is a political statement. This may be true, but if they are a political statement, I fear it is not the statement we should be making. By ignoring the context of problem and solution, we suggest there is a technological fix where none exists. Rather than fighting for freedom of movement, CHI has sent out the message: "Everything is OK. We can deal with this. We have a solution." This is problematic in and of itself, but especially problematic as the travel ban was at the time being hotly debated. We had the option to weigh in on this discussion. By not engaging with the problem on a political level, CHI has implicitly endorsed the policy.

To be clear, the issue I have is not the quality of our telerobots. This type of telerobotic technology is in its infancy, and many of its problems may one day be solved. Even if the technology was sufficiently mature that able-bodied people who have the luxury of freedom of movement might chose to use them, I would still be raising this issue. Picture for a moment an imaginary country in which part of the population—maybe women, maybe people of color, maybe people from a particular region—are not allowed to attend public events such as conferences. Because this country has the best imaginable telerobots, we might argue that this is not a problem; the part of the population without assembly rights can always use a robot instead. However, while access to such a robot is clearly beneficial, it only addresses a symptom of the problem. Addressing this symptom in no way removes the structural discrimination present in this imaginary country.

Sometimes there is not "an app for that" and, especially as HCI researchers, we should be able to appreciate this and provide nuanced solutions to complex problems. The organizers of last year's CHI were thrust into a difficult situation with little precedent on how to handle it. Given all the difficulties they faced, they succeeded in organizing a conference that many applauded for the level of access they provided to people who typically struggle at such events. I discussed my concerns with the conference chairs at the time, and I in no way mean to suggest incompetence or malice on their part. While I disagree with how they handled the situation, I understand that they were dealing with a complex situation and did so pragmatically. However, just as I would like to see our research understand the limits of its domain and acknowledge that some political problems do not have technological solutions, I would hope that in the future, our community is brave enough to engage with complex situations on a political level as well.

● **Paul Strohmeier,** University of Copenhagen

Putting CHI in Place

I am in a small village in the Italian Alps for my two-day holiday. As I savor the air, the food, and the voices of my home country, I question the meaning of an academic summer spent writing papers. In search of an answer, I text my best friend: Any "tech & rural" community nearby? If such a community exists, I will join it at once. Her reply points at Esino Lario, a mountain village near Lake Como in Northern Italy (Figure 4).

Esino hosted Wikimania 2016, the annual Wikipedia conference whose past host cities have included London and Mexico City. Wikimania 2016 is interesting because it took place throughout the village: Hackathons, talks, and parallel sessions happened in schools, bars, and restaurants; delegates stayed in a network of independent hosts; and costs were kept to a minimum.

Wikimania 2016 was a brave move that resonates with the unease felt in parts of the HCI community around the current CHI conference model of "big city, large convention center, multi-star hotels." Many of us do enjoy the event: The two most recent CHI surveys available at the time of this writing (2014, 2015) indicate that more than 90 percent of the respondents would recommend the conference to others, as they value "getting new ideas and inspirations," "meeting new friends and colleagues," and "learning new

material." However, when participants of another survey [19] were asked (unprompted) for the reasons they go to CHI, "prestige," "recognition," and a "sense of obligation" also emerged. With registration and travel costs soaring, one must ask if the current conference model is the best way to support top independent research, early-career development, rigorous peer review, responsible impact, and equal opportunities.

Several initiatives have been tackling these questions, but more often at the edge of academic research than at the core. For example, the British Science Association (BSA) initiative "Science: Not Just for Scientists" has called for bold and ambitious ideas around the democratization of scientific research. Submissions include the unapologetic *Queer Science Manifesto*, questioning "the shoulders of the giants that came before. How did they become so broad?" [20]. There are government-sponsored initiatives, such as Dagstuhl in Germany and the NII Shonan in Japan, that support small and reflective research practices. There are also partnerships between industry and cultural institutions, such as the BMW Guggenheim Lab, which between 2011 and 2014 traveled worldwide and worked with its host communities. Others, such as re:publica, operate outside traditional academic tracks, pushing digital technologies into civic action. Finally, the publish-first conference model is gaining momentum and so is open access for academic dissemination.

Alternative models of academic gathering and sharing exist: Is CHI ready to embrace the change? The CHI 2017 SIG "Taking Action in a Changing World" [1] offered the opportunity to discuss this question. Simply put, CHI is now very large and can default to unimaginative ways of organizing itself. What can be done to support the diversity of values shared by the HCI community

Figure 4. Small goes massive: More than 1,200 delegates converged to Esino Lario, Italy, for the annual Wikipedia conference in 2016. The event took place throughout the village.

and meaningfully combine creativity, experimentation, and intellectual freedom with equal opportunities, care for the environment, and responsibility for the communities we work with and for? We also wondered if there are constructive ways to plan CHI differently: Can we experiment with financially sustainable and culturally sensitive meet-up models that still promote inspiring face-to-face encounters and top-quality research? These new models should aim to:

• Support local economies and small businesses alongside industry
• Facilitate opportunities for informal encounters with our hosts
• Promote a better understanding of the place (i.e., history, social, environment, economy, tech infrastructure)
• Foster opportunities for partnering with local community groups and businesses.

At the SIG, a number of tension points were identified:

• *Choice of place.* Between 2007 and 2017, eight of the 11 CHI conferences were held in North America, two in Europe, and one in Asia. We thought we should try harder to be less North America–centric. We understand the higher financial risks involved, yet other top-tier conferences, such as the International Conference on Software Engineering (ICSE), manage to move continent every year. What could we learn from them?

• *Response and responsibility.* There is scope for CHI organizers to be more politically assertive and engaged, among their many duties. Reacting to unpredictable societal changes is not easy. For this, mechanisms such as a rapid-response unit could be put in place and on stand-by to be activated at a time of need (e.g., last year's travel ban). This would provide a focused team to seed the search for targeted advice and support.

• *Deep CHIVersity.* We should expand the lessons learned from initiatives such as CHIVersity and CHI-for-good into actions that push diversity further and embrace class and cultural differences, both within the CHI community and in the host community.

After the SIG event and several follow-on conversations, a number of ideas for change emerged; they are summarized here in three groups: those that could happen *around*, *within*, or *outside* large conferences such as CHI:

Can we experiment with financially sustainable and culturally sensitive meet-up models that still promote inspiring face-to-face encounters and top-quality research?

• *Around.* With many HCI research-active universities close to Glasgow, U.K., hosts of CHI 2019 (e.g., Lancaster, Newcastle, Northumbria, Edinburgh, Dundee), there have been discussions of a CHI Fringe around the city and the region. The fringe model is a compelling one and has been tried and tested in the context of arts festivals (Edinburgh Festival Fringe) and design fairs (Milan Fuorisalone), but less perhaps in academic research. Yet, why be fringe when we could be center?

• *Within.* An alternative could be to have a physical place, at the heart of the conference, where we run experiments and show-and-tells open to the general public. Perhaps a pilot could be tried out in Glasgow. To keep costs low and add value to the host community, an empty space could be used. The U.K. is full of initiatives to give empty spaces a new lease on life.

• *Outside.* What if CHI became part of something much smaller (approx. 120 delegates)? For example, a micro Glastonbury of computing research; an affordable yet high-quality research festival geared specifically toward early-career researchers and Ph.D. students. Accommodations could include camping facilities; food could be provided by a selection of local and independent caterers. Instead of lecture theaters, we would have "stages": One stage could host a keynote track with speakers drawn from top conferences (e.g., CHI, AAAI, WWW, ICSE); others would host early-career researchers' presentations, debates, and show-and-tells. The evenings could be scheduled to showcase digital performances and cinema screenings. These research festivals could grow and link up into a small network of events in different yet regular venues (e.g., one or two on every continent) to be used in rotation every year. This network could be set up as an association with a common-values charter, where the local is responsible for the global [21].

Any or all of these initiatives could reanimate the conference in ways that are more inclusive and supportive of students and early-career researchers. I'd be pleased to discuss, flesh out, and pilot any of these ideas with anyone interested. Just drop me a line.

🎤 **Maria Angela Ferrario,** Lancaster University

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