

Conflict Interfaces

Mediated Meditations on Desire, Fear and Anxiety

Matthew Wizinsky^(✉)

School of Design, University of Cincinnati, Cincinnati, USA
matthew.wizinsky@uc.edu

Abstract. Personal computing interfaces have so fully integrated into contemporary life that their impacts on everyday choices often go unnoticed. The discipline of User Experience Design operates a user-centric methodology that similarly dissipates the designer's sense of responsibility for the social effects produced by such systems. This situation doubly masks the potential for personal computing interfaces to operate with goals hidden from and potentially contradictory to those of their users. By situating personal computing interfaces and User Experience Design within various theoretical contexts, I will describe a growing body of critical HCI work that I identify as Conflict Interfaces and share pedagogical techniques for teaching interaction design through the lens of political conflict.

Keywords: Interaction design · Critical Design · User Experience Design · Speculative Design · Design pedagogy · Political theory · Mediation · Agonism

1 Introduction

As our myriad machine companions become more intelligent and more embedded in our everyday lives, we tend to lose sight of the fact that we are interacting with complex systems designed by other human beings for a multitude of intentions. Our daily and mundane interactions with systems and interfaces of mobile and personal computing produce a new natural order to life that belies the potential for these systems to harbor goals that are contradictory, conflicting or simply tangential to our own. We make choices about our daily movements based on real-time and predictive data from the city. Location-based “recommendations” influence choices in everything from shopping to dining to choosing a doctor. Social media systems and their distributed interfaces produce spaces that define and mediate relationships with our friends and families and even play the role of romantic matchmaker. The news we receive about local or global events is filtered and sculpted by our tracked and calculated preferences and behaviors. Even our cultural experiences are affected by algorithmically-determined suggestions for books, films, music, and entertainment. All this is to say nothing about the nature of contemporary work, which has radically altered the human experience from email to video conferencing to specialized software of all varieties.

This comfortable proximity of mediated information and feedback as an apparently supportive companionship (*thanks, friend!*) holds the potential for—and maybe even masks—coercive sway in the tiniest nooks of everyday life. Of course, such systems

are all products of human efforts and are borne of the human intentions that brought them into our new social, cultural and work experiences.¹ While often useful or convenient, these systems and their interfaces are not exactly adapting themselves seamlessly into our daily lives. Instead, we are often so enamored by their utility and convenience that we willingly bend toward their languages, prompts and rituals. By allowing even trivial decisions to be swayed by algorithmic determinations, we are, in effect, limiting our own choices and, perhaps, overlooking the possibility of coercion.

The design of everyday human interactions with computing systems has ushered in something akin to a meta-category of design practice called User Experience Design. Transcending traditional distinctions made by domain, media or discipline, User Experience Design draws on methodologies known from product design, communication design, software design and others, producing techniques and methodologies to materially and experientially situate computational experiences within human lives.

Within this context, I will describe a growing body of critical HCI work that I am identifying as Conflict Interfaces. Conflict Interfaces foreground and make palpable the reality that personal computing interfaces are the sites of mediated political relations. Often presented as prototypes, one-offs, installations, performances or other means of provocation, these projects are not typically intended for mass production, nor do they propose a *should be* vision of technologically-driven social organization. Instead, their purpose is to make the personal computing interface understood as a complex site of desire, fear and anxiety. By doing so, they make visible the often imperceptible social or political forces that produce such interfaces to suggest they could be re-imagined or even re-configured. These works traverse diverse sub-categories of Critical Design practices, including Speculative Design, [3] Adversarial Design [1] and Tactical Media [12]. They emanate from university research labs, experimental media collaboratives, exhibitions, student projects, conferences, competitions and other liminal spaces in the great global network of technology experimentation. They are inherently political in their ambitions and use design's power to make complex—even contradictory—ideas materially manifest.

To understand how Conflict Interfaces operate, I will first build the theoretical and practical contexts that situate them within various contemporary design practices. From that grounding, I will share my preliminary experiences in expanding this territory—theoretically and practically—through teaching interface design as a critical practice. These pedagogical approaches are supplemented by case studies of projects by university students to exemplify the territory of Conflict Interfaces that I am defining.

2 Context

What do I mean when I claim that personal computing interfaces are the sites of *mediated political relations*? To further define these terms and give Conflict Interfaces a theoretical grounding, I will draw on positions from political theory, social theory, systems theory and critical practices in design.

¹ Bruno Latour tells us, “Technical action is a form of delegation that allows us to mobilize, during interactions, moves made elsewhere, earlier, by other actants” [8, p. 52].

2.1 The Political

Political theorist Chantal Mouffe distinguishes “the political” from “politics” in this way: “By ‘the political’ I refer to the dimension of antagonism that is inherent in human relations, antagonism that can take many forms and emerge in different types of social relations. ‘Politics,’ on the other side, indicates the ensemble of practices, discourses and institutions which seek to establish a certain order and organize human coexistence in conditions that are always potentially conflictual because they are affected by the dimension of ‘the political.’” [10, p. 101] If we follow this *agonistic* view of political theory [9], an interface between two systems negotiating independent—and, therefore, potentially competing—goals becomes the site of *political* negotiation.

Political negotiations are an inescapable aspect of human social relations. Any space that produces territory for negotiations is an opportunity for inquiry, debate and re-configuration of the relations that produce that space. Given the vast quantity and diversity of human relations that unfold within human-computer interfaces today—from personal to institutional to corporate to governmental communications and exchanges—personal computing interfaces produce a multi-dimensional space in which contemporary power relations are configured, established and operated.

2.2 Mediation

Inspired by Bruno Latour, I will take up a definition of *mediation* as the action-and-effect of human actors (*makers*) producing the signs or objects that engage and shape the lived experiences of other human actors (or *users*). Latour gives us the wonderful example of the speed bump [8]. The driver’s intention to *get from point A to point B* is subtly interrupted by the mediation of the speed bump and becomes *slow down to protect nearby children or pedestrians*. Or, perhaps more cynically, *slow down so as not to damage my car*. Either way, the driver’s behavior is modified. We can understand mediation as a complex entanglement in which techniques, production systems and human intentions are translated into an inseparable mix of materiality and social relations.

Generally speaking, design operates at this point of *translation*—turning intentionality into a complex blend of matter and experience. From Latour’s example, the speed bump is not just a lump of painted concrete, but it is “full of engineers and chancellors and lawmakers, commingling their wills and their story lines with those of gravel, concrete, paint, and standard calculations” [8, p. 41]. In this way, mediation describes the scenario in which “we hourly encounter hundreds, even thousands, of absent makers who are remote in time and space yet simultaneously active and present” [8, p. 40]. In our everyday encounters with speed bumps, cultural etiquette, kitchen utensils and so on, the makers of these signs and objects—unlikely to be present with us in person—are actively shaping our experiences based on some prior set of goals.

Certainly, personal computing interfaces operate from a breadth and diversity of social and material techniques at least equivalent to those of a speed bump. Designers play a mediating role when domesticating technologies to make them useful, viable and desirable, in turn, transforming our daily experiences.

2.3 Learning Systems and Choice

Setting out to characterize different types of interactions, Dubberly, Pangaro, and Haque have developed a matrix of couplings between different orders of systems [2]. For example, a human operating a steam engine is seen as a “learning system coupled to a self-regulating system” [2]. The complexity of interactions between coupled systems increases as each system moves from Reacting (linear) to Self-Regulating (first order) to Learning (second order). In the “Conversing” model, two Learning systems are engaged. Each system takes input from the other, yet each system “has the choice to respond to the other or not” [2]. The element of *choice* is critical as it allows each system to maintain or re-adjust its goals in response to the other system’s feedback—or ignore that feedback altogether.

This systems view of interaction helps better articulate the nature of mediation in most contemporary personal computing interfaces. It states that *intention*, the capacity for independent goals and malleable decision-making, is a necessary condition for a Learning system. The author—i.e., designer, developer, distributor—of the system is no longer directly involved in the ongoing and changing actions of the system, delivered through its interface with the human user. Rather, the Learning system is encoded with its author’s (or authors’) intentions during production, then left to continually adjust its goals and subsequent actions autonomously toward those intentions. This complicates and obfuscates any clear view of the author’s agenda. The author is both anonymous and absent while the system—through its interface—takes on its own authority to mediate the political relations between absent maker and present user.

2.4 User Experience Design

The term *interface* defines that point (or system of touch-points) where two or more systems, orders, or logics intersect and interact. An interface makes manifest the social, material and experiential nature of that interaction. Given that Human-Computer interfaces are the product of human labor and intention, we can recognize that an interface is actually a mediated space for human-human social relations. In other words, an interface produces space within which social and power relations unfold. Personal systems that utilize computation and algorithms to inform, prompt, nudge or assist humans in everyday life play an integral role in decisions we make from the grand to the mundane: from my filtered and curated local, global and political news to the neighborhood where I decide to live or where to pick up dinner. The customization of modern technologies has embedded them so deeply into our daily rituals that they seem a natural extension of our own most personal needs and desires.²

The last few decades have seen human-computer interfaces move to center stage of almost all cultural experiences. With this transition, many communication and product designers have focused their efforts on creating fluid and extensible languages and

² According to Latour, the adjective *modern* “does not describe an increased distance between society and technology or their alienation, but a deepened intimacy, a more intricate mesh, between the two” [8, p. 47].

scenarios for human-machine systems to interface in disparate locations, asynchronously and across multiple touch-points. The discipline of User Experience Design has emerged with its battle cry: “Know your user!” [11] Designers are trained to practice User Centered Design processes to understand the needs, desires, contexts and motivations of potential users in order to align new products or services with their aspirations, behaviors and daily rituals. These techniques have helped produce many successful personal computing products and services. Yet, with these new disciplinary techniques come new questions: What role do personal computing and communication technologies—including the people who labor to produce them—play in producing or maintaining social relations and even power struggles through the everyday experiences they generate? Based on Michel Foucault’s historical analysis of power structures and disciplinary techniques, we see that disciplines produce knowledge at the same time that they produce new sites for exercising power and asserting authority [4].

If designers view their decisions about how to shape other humans’ experiences as directly informed by qualitative and quantitative research based on the *needs* of other people (*users*), designers are less likely to understand their work as guided by any personal subjectivities, desires or judgments. It would be very easy for the interaction designer to feel that she is merely operating the controls of a dynamic (maybe even *altruistic*) system and overlook the authority she is surely investing in the process and product. While the autonomy of the interface and its supporting systems seems to disappear into its banal role in everyday life on the *user* side, the designer’s authority and responsibility similarly fade into a sense of simply satisfying needs on the *maker* side.

2.5 Critical Design

It is interesting that the term “Critical Design” was coined in the 1990s—the early days of personal computing and the dawn of the internet. “It grew out of our concerns with the uncritical drive behind technological progress, when technology is always assumed to be good and capable of solving any problem” [3, p. 34]. It was the increasing prevalence of personal experiences with computation that clarified design’s capacity to problematize the relationship between design and technology.

Critical Design is distinguished by intentionality rather than methodology. The intention of Critical Design is to *use* design—its processes, techniques and outputs—to embed critical or social commentary within objects, communications, environments or, indeed, interfaces. Rather than writing a critical assessment of design’s complicity in technically-driven social conditions (as I am partially doing here), Critical Design produces that commentary within design’s own modes and materials of engaging an audience. This immanent form of critique uses the languages and techniques of the same systems they confront to let us materially experience opposition to, exaggeration of, or simply a refusal of design’s role in perpetuating the status quo. Such critique is “not necessarily negative,” [3, p. 34] but can serve to offer alternatives, highlight hidden agendas or simply examine “weaknesses within existing normality” [3, p. 35].

Because design operates across many domains, Critical Design produces material and experiential critique that is topical while also questioning design’s role in that

topic. For example, a designer working on a kitchen utensil must consider a variety of factors, including: the functional needs of the tool for cooking or baking, the human form as it relates to using that tool, material demands related to heat, durability or cleanliness, feasibility concerns such as manufacturing and unit cost, as well as the cultural context within which this utensil must be perceived as useful and desirable. Meanwhile, a Critical Design approach considers these same factors but might add to them a questioning of gender roles associated with that product. Rather than ignoring or reinforcing normalized gender views for the purpose of functional and commercial success, the designer of a *critical* kitchen utensil might exaggerate, invert or distort these views to help us understand how they are folded into the design of any object—either inadvertently or to capitalize on them.

2.6 Speculative Design

As a category of Critical Design, Speculative Design uses design methodologies to expand beliefs about what is possible—often through imaginative future worlds or alternate versions of reality. After coining the term Critical Design, designers Anthony Dunne and Fiona Raby became evangelists of Speculative Design, demonstrating its potential and techniques through their own practice and as educators. They describe the aims of Speculative Design as such: “This form of design thrives on imagination and aims to open up new perspectives on what are sometimes called *wicked problems*, to create spaces for discussion and debate about alternative ways of being, and to inspire and encourage people’s imaginations to flow freely. Design speculations can act as a catalyst for collectively redefining our relationship to reality” [3, p. 2]. They assert that conceptual acts of design produce social value by opening up new spaces and experiences for critical dialogue. “It is not enough that it simply exists and can be used to experiment or entertain; we also want it to be useful, to have a sort of social usefulness, specifically, to question, critique, and challenge the way technologies enter our lives and the limitations they place on people through their narrow definition of what it means to be human...” [3, p. 34].

With the explicit intention of promoting debate, this work is grounded in a democratic ideology. Speculations may vary from optimistic utopias to dystopian cautionary tales. Regardless, these radically imaginative proposals give us something tangible to advance dialogue on where we are and where we’re going—or where we’d like to go.

3 Conflict Interfaces

Building from these theoretical positions and critical approaches to design, I identify Conflict Interfaces³ as a body of research and creative production directly pointed at critical investigations *of* and *within* Human-Computer Interfaces—particularly,

³ “It’s such a gamble when you get a face” [5]. It’s also a gamble to put a face—or a name—on any emerging and as-yet unnamed body of creative or technical work.

interfaces of personal and everyday use. The ubiquity of computer-interfaces for personal use in daily life creates a robust and capacious space for critical inquiry into political contestations at the scale of a “micro-physics” of power operations [4]. From an agonistic political perspective, conflict is inevitable in all social relations, and this certainly extends to one of the most populated sites of contemporary human relations.

By design, Conflict Interfaces induce and make manifest a sense of conflict within the human participant in relation to the goals and prompts of the interface itself and/or the human actors responsible for the interface. Rather than making attempts to hide, neglect or flatten those conflicts, Conflict Interfaces demonstrate that intractable contemporary political and cultural differences can be uniquely engaged *in* and *through* personal computing interfaces.

Conflict Interfaces produce a point of tension by rupturing the dream of seamless (*responsive! intuitive!*) computer-mediated communications. They encourage reflection on the myriad ways in which human-human power relations are mediated through human-computer interactions and invite us to reflect upon and critique the nature of these relations. Conflict Interfaces don’t critique specific technologies but the social organizations produced through interactions with computational devices. By disrupting the trust we place in our daily, routine and even mundane interactions with personal computing interfaces, these projects ask how we might maintain, sustain or gain some autonomy—maybe even *human-ness*—in our continually evolving relationships with computer-mediated social systems.

4 Interaction Design as Critical Inquiry

One of the dominant pedagogical models of contemporary design education—particularly within Interaction Design—is that of User Centered methodologies. Interaction Design students are tasked to balance technical, conceptual and aesthetic decisions with a clear understanding of the *needs of the user* of the system they are creating.

While recognizing the value and opportunities of this model—sharing authority in the normative process of design—there is a challenge in teaching these methodologies without compromising an understanding that the designer is still ultimately responsible for the social effects of her productions. How can students engage in effective user-research methodologies to generate an empathetic understanding of *users’ needs* while simultaneously using this process to evaluate the power structures embedded in the resulting social interactions? Further, how can students inscribe their work with an articulation of those evaluations—laden as they must be with the students’ own desires, fears, anxieties and intentions? In other words, how can teaching these methodologies produce interaction designers who are critical and reflective producers of mediated social interactions, taking stock of their own accountability in the process?

4.1 Pedagogy

My position is that Conflict Interfaces offer an excellent method for bringing criticality to teaching interaction design. Based on preliminary attempts at blending User

Centered and Speculative Design processes, I have observed rich potential for encouraging students to see their work as naturally coercive—rather than missing or overlooking the broader political implications inherent in any system of mediation. By doing so, students are forced to take stock of the fact that *their* goals merge with the perceived *user's needs* to produce interfaces that are the sites of political negotiation. Students must explore the tensions, paradoxes and conflicts inherent in mediated political relations to understand how those relations are played out through Human-Computer interfaces. Their interaction projects become more focused, and I believe it invests them with a heightened sense of responsibility (perhaps, the starting point of an *ethics*) for their work as designers.

User Centered Processes. From the User Centered Design model, students are asked to investigate social issues via a combination of Secondary Research (essays, articles, current events, social/cultural/political trends), Primary Research (direct observation, discussions, surveys, interviews, expert testimonials), Creative Inspiration (contemporary conditions observed through trends in products, services, fashion, media, entertainment, etc.) and to research New and Emerging Technologies to understand what new things are coming out of research labs and what impacts they are proposed to have on contemporary life. From this matrix, students map, align, identify and hone in on a particular topic space, which is then articulated as an opportunity for design to intervene. The typical extension of the User Centered Design process from this point of identifying a problem/opportunity space would be to ideate, prototype, test and refine until arriving at a “solution.” Hardly a straight line, yet the intention of *resolution* drives these activities forward as a unified force.

Speculative Processes. Following this first leg of the User Centered Design process, my approach has been to extend beyond a “solution” into *possible* future conditions. This Speculative Design approach willfully admits the intention of proposing, provoking and making critique rather than resolving. Having identified a problematic issue within its systemic contexts, students engage in written and visual exercises to imagine an array of *possible* future scenarios by extending these contexts into the near future—usually 20-30 years out. For example, imagine that the problematic issue becomes as bad as you can possibly imagine. What would happen if all of society hinged on this one issue? This act of reduction crystallizes the various social and material forces driving the issue, letting us examine it from the level of object to system to network of systems to society. Next, imagine if the problematic issue disappears completely tomorrow. What new social organizations—but also challenges—might result to occupy those objects, spaces or rituals currently defined by the problematic?

To connect social conditions with techniques of mediation, students are next asked to play out writing and visualization experiments imagining similarly divergent future scenarios based on a single example of emerging technology. What do the inventors claim this technology can do to make life better, safer, healthier, more efficient or more pleasant (after all, this is how new technologies are often *sold* to the general public)? Imagine these utopian promises were to come true and change life as we know it. Now, imagine the unforeseen but *always also present* negative impacts this technology holds. What dystopian future worlds are also possible within the promises of emerging technologies? These mental and visual exercises quickly produce a matrix of

speculative future scenarios in which we can articulate our contemporary desires, fears, and anxieties at the same time that we identify the social, cultural, political or technological twists that could create new versions of reality. We can then ask what artifacts, communication systems, environment or interfaces would that world reality produce, and how might we read the proposed social conditions within those designed outputs.

Hybrid Model. By blending User Centered Design processes with a Speculative Design approach, highly imaginative proposals are paired with rigorous methodologies to keep the research and its outputs lively, critical, reflective and relevant [13]. In order to make work that is critical yet still situated in design's normative functions, projects must present enough desirability to imagine *wanting* as part of a new daily life, yet also produce an anxiety that reveals the political tensions at play. The closer the proposal lies to my everyday desires and fears, the more power it has to disturb my understanding of current—and possible future—social relations that shape my daily life.

4.2 Student Case Studies

The Algorithmic Automation of Politics: *Google Vote*. Smartphone users are familiar with the moment of decision to be made when installing a new app: *Do you accept the terms and conditions?* The conveniences afforded by “useful” apps make it easy to often shrug off what might normally be concerning requests for information such as your location, personal contacts, etc. Meanwhile, our tastes and preferences are increasingly “accommodated” by smart systems that analyze behaviors such as online searches, purchases, likes, and so on. But, how far are we willing to hand over personal and private choices to algorithmically determined patterns?

Google Vote is a project by Nicole Krause, produced while she was a student at the University of Illinois at Chicago. As a graduate student in Communications, Nicole studied the affects of media on political discourse, the polarization of political rhetoric in the United States and the emergence of a phenomenon called the *Spiral of Silence*, the quieting of centrist political views and accompanying reduction in voter participation, particularly by young people. To explore these tensions in an experiential manner—beyond the reach of essays and empirical research—Krause produced a Speculative Design project to engage contemporary audiences in critical dialogue about the future of democracy in the United States.

Krause imagines a near future in which voter participation is so low that it threatens to undermine the most basic principle of democracy: voting. The only solution is for the U.S. Government to partner with a private technology corporation (*guess who!*) to make voting “smarter” and “easier” for the whole population. *Google Vote* extends the potential of algorithmic determinations based on users' preferences and behaviors by suggesting this data could also translate citizens' interests and actions into votes for pending legislation or candidates for public office. The system asks the user to complete a brief series of abstract philosophical puzzles in order to produce a custom worldview. Having established the user's worldview, the app makes voting recommendations for local, regional or national issues and candidates (Fig. 1).

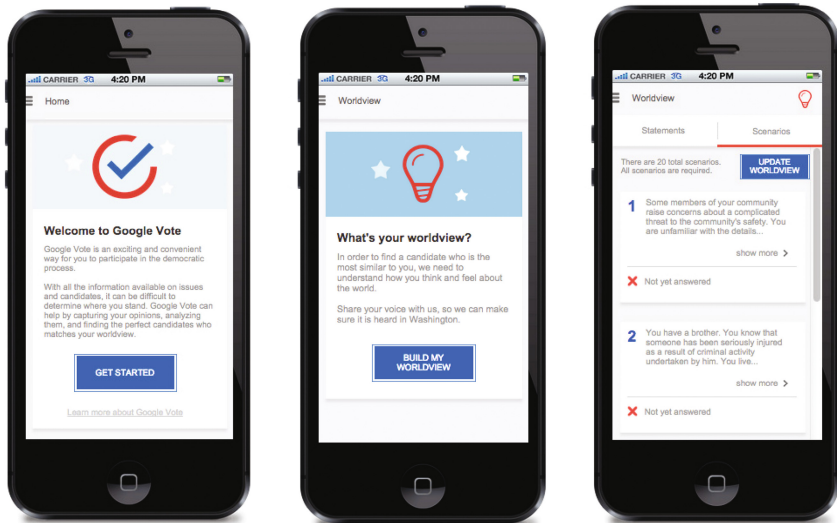


Fig. 1. Google Vote by Nicole Krause, University of Illinois at Chicago

The anxiety of your vote being determined for you is exacerbated by the proposal of this as an Opt-Out system. Unless you adjust your worldview to alter the recommendations of the system, it will automatically cast its algorithmically-determined votes for you. These tensions at the intersection of politics, algorithms of choice and personal computing are beautifully summarized by the button labeled, “Build my Worldview.”

Vote with Your Wallet: PollWatch. University of Cincinnati Graphic Design student Evan Hoffman took a Speculative Design approach to antagonize the relationship between politicians, corporate donations and American consumerism in his project *PollWatch*. Hoffman envisions a future in which citizens no longer cast ballots to elect political leaders or enact legislation. Rather, votes are cast based on each citizen’s shopping habits. Proposed as an interactive personal data system for a wearable device, the user’s purchase history is tracked to reveal the political causes supported by those corporations or businesses from whom the user buys products. Over time, the user’s profile generates a political “stance,” situated between six poles that quantitatively represent the political leanings of the products and corporations patronized. This act of *reductio ad absurdum* crystallizes the relationship between politics and corporate political influence in order to focus on how it might produce new forms of political life—simultaneously asking us to question the current state of this relationship (Fig. 2).

By contrasting the political “stance” supported through consumption against a desired political “stance,” users can identify the gap between ideals and purchase-derived actions. “Anyone can track their spot on the political spectrum and adjust purchases accordingly or change their own platform to better coincide with their stance. When changing platforms, users may even choose a template based on a favorite politician, celebrity, or religion” [7].



Fig. 2. PollWatch by Evan Hoffman, University of Cincinnati

The problematic moment arises when a user can choose to adjust spending to match political ideology or let the system “recommend” a more appropriate ideology. This conflict, derived as it is within a wearable and personal computing interface, creates the perfect point of anxiety in which the reach of such systems can be experientially understood and considered.

5 Conclusion

As we have been acclimating to the complete integration of personal computing interfaces into everyday life, the human efforts to produce such systems have congealed into new disciplinary techniques for deigning interfaces between humans and computational systems. Most designers would readily admit their work holds the potential for persuasion. Yet few would likely recognize that the experiences they produce between human actors and computational Learning systems also produce sites of political conflict simply by making manifest new spaces for communication and exchange. As a category of critical HCI work, Conflict Interfaces offer new perspectives on the social impacts of personal computing interfaces plus opportunities for teaching interaction design as a method of critical inquiry.

Can these stabs at the status quo make real change? Is a prototype or installation enough? Dan Hill would likely tell us no [6]. He urges designers to engage in policy-making and public service for real change. Yet, where to begin?

I believe this begins by developing positions on current conditions, by making informed and intelligent speculations about where things could be going, then using

design to share that vision materially and experientially. Critical Design is only possible *in relation to* the discipline's standard operations. The two work in tandem, pushing and pulling one another. Critical Design practices create new visions of society while demonstrating design's normative role within it. By offering tangible views of the next horizon of social organization, Conflict Interfaces clarify our contemporary desires, fears and anxieties to help us imagine where we'd like to go next.

I have a wild hunch that human-computer interactions will continue to evolve into more dynamic, more complex, more unpredictable and probably far more provocative scenarios—scenarios in which traditional notions of human agency will be increasingly challenged, compromised and transformed. With those changes, I hope there will be a parallel evolution of Critical Design practices to continually provoke and challenge us to question the ways that technologies produce and mediate the human experience. This is what design is so good at doing: normalizing today's version of everyday life while simultaneously imagining radically different possibilities for what's next.

References

1. DiSalvo, C.: *Adversarial Design*. MIT Press, Cambridge (2012)
2. Dubberly, H., Pangaro, P., Haque, U.: What is interaction?: Are there different types? <http://www.dubberly.com/articles/what-is-interaction.html>
3. Dunne, A., Fiona, R.: *Speculative Everything: Design, Fiction and Social Dreaming*. MIT Press, Cambridge (2013)
4. Foucault, M.: *Discipline and Punish: The Birth of the Prison*. Random House, New York (1995)
5. Hell, R., *The Voidoids: Blank Generation* [LP]. Sire Records, New York (1977)
6. Hill, D.: *Dark Matter and Trojan Horses: A Strategic Design Vocabulary*. Strelka Press, Moscow (2012)
7. Hoffman, E.: *PollWatch*. <http://studiojunglecat.com/speculativecity/pollwatch/>
8. Latour, B.: On technical mediation: philosophy, sociology, genealogy. *Common Knowl.* 3 (2), 29–64 (1994)
9. Mouffe, C., Wagner, E.: *Agonistics: Thinking the world politically*. Verso, New York (2013)
10. Mouffe, C.: *The Democratic Paradox*. Verso, New York (2000)
11. Norman, D.: *Human-Centered Design Considered Harmful*. <http://jnd.org/>
12. Raley, R.: *Tactical Media*. University of Minnesota Press, Minneapolis (2009)
13. *Speculative City: An Interdisciplinary Design Studio*, curriculum by Matthew Wizinsky. <http://studiojunglecat.com/speculativecity/>