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Wear and Care Feminisms at a Long Maker Table

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WEAR AND CARE

Feminisms at a Long Maker Table

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Although there is a deep history of feminist engagement with technology, the FemTechNet initiative (a feminist collective of which we are both a part) argues that such history is often hidden and that feminist thinkers are frequently siloed. At the same time, initiatives to promote critical making, acts of “shared construction” in which makers work to understand both the technologies and their social environments (Ratto 2011: 254), often exclude women and girls from hacker/makerspaces that require both explicit permissions and access to implicit reserves of tacit knowledge. Even attempts to provide superficial hospitality can inflict microaggressions on those who feel excluded from the sites of technology. When these bastions for tinkering under the hood promote “pinkification” with hyper-feminized projects and materials emphasizing servility, consumerism, or beauty culture, the results are often counterproductive. Take, for example, Google’s recent “Made with Code” effort, which emphasized accessories and selfies as projects appropriate for girls. Even the otherwise admirable “Girls Who Code” site tends to rely on the default design schemes of stereotypical gender typing, including a curling cursive script for section heads, a color palette dominated by a rose-pink, and the iconography of sisterhood and empowerment in the graphics and scrolling images.

With the rise of popularity in hacker/makerspaces has come an old reproduction of inequality at the sites of innovation and education in which women, people of color, middle-aged and elderly citizens, queer and genderqueer people, and people with disabilities are affectively and/or economically excluded. Of course, there are also ways to decolonize the female body with makerlab projects that emphasize sexual agency, reproductive rights, and resistance to gendered violence. For instance, by integrating traditional knowledges and citizen science into their work on “DiY (Do it Yourself) gynecology” (Chardronnet 2015), the GynePunk project demonstrates how the women of the Pechblenda biolab (established outside of Barcelona as part of a larger hack community called the Calafou Collective) can occupy a hackerspace in new ways to serve disadvantaged Catalan women, sex workers, and refugees. Stefanie Wuschitz, a digital artist based in Vienna, has also piloted a number of experiments in creating temporary “Rumah Hacker” spaces in Taipei, Yogyakarta, Linz, Damascus,

Offenbach, New York, and Copenhagen that borrow from the practices of women's tribal houses in Sumatra to foster projects with nonpatrilineal, multiple parentages and an ethos that is more welcoming to women. Other feminist hackerspaces are characterized by their attention to members' security and comfort, the values of domesticity, and respect for traditional craft labor (Fox et al. 2015).

In the spirit of such experiments, #FemDH, an annual course at the University of Victoria's Digital Humanities Summer Institute (DHSI), tries to bring theory and practice together around a range of coding and physical computing activities (see Chapter 25 in this volume for more) to emphasize how the material, embodied, affective, labor-intensive, and situated character of engagements with computation can operate experientially for users in shared spaces. This includes not just desktop/laptop style computing, but also the more embedded forms of wearables and networked "smart" devices like FitBit-style health devices and home climate control tools that are increasingly prevalent for some in the western world. The goal of mixing theory and practice is to facilitate new forms of participation in which the assemblages of personal and shared computing and the abstractions and lived experiences of feminist thought mutually impinge on one another. In other words, we encourage participants to meditate upon mediation and mediate conversation together, about how the range of choices may be constrained and yet how available technologies and iterative design practices may still be potentially open to appropriation. (For more on "creative mediation" see Kember and Zylinska's work on vital processes in *Life after New Media*, 2012.)

Outpost Colonialism

In 2013, Wernimont was working with Beatriz Maldonado, then a Scripps College student, on a project to take a two-dimensional poem and transform it into a three-dimensional algorithmic object. In the course of that work, Wernimont suggested that Maldonado might be interested in exploring the LA Makerspace as a way of learning more about making traditions in digital education and practice. As teacher and mentor, Wernimont also hoped it would provide Maldonado with an opportunity to develop expertise about a local resource that she might then share with other students, staff, and faculty.

We encourage you to read Maldonado's full account of her experience, but it can be summarized in her own words: "I felt distinctly out of place" (cited with permission, Maldonado). As a Latina and first generation college student, Maldonado encountered the makerspace as an all-white space of privilege that engendered feelings of sorrow, pain, and inadequacy. Her trip was fraught with concerns about costs and transportation, including the impact her visit would have on her mom and younger brother. She felt alienation, embarrassment, and even jealousy in the course of her time at a workshop there. As she watched a "mother and son [who] were sharing their exploration of technology" in the makerspace, Maldonado reflected that she did not "have the same kinds of moments over [her] research." Her work as a research assistant and student of maker culture was not accessible to her family; there would be no shared moments of discovery for her to cherish. In a particularly cruel twist, the makerspace is housed in the LA Mart, a space virtually in Maldonado's "own neighborhood" where she grew up. It was and remains an outpost of a maker culture that is colonizing spaces within Los Angeles, even as it functionally denies access to those nearby. Like the colonial outposts of imperial Britain, the LA Makerspace marks and holds a space on behalf of new regimes of political economy. Maldonado's story bears witness to the ways in which makerspaces may actually reinforce many barriers to entry

by following a script of common design choices that cater to particular kinds of users, despite promulgating an ethic of openness.

If located in gritty urban settings, like many of the Dorkbot SoCal meetups, makerspaces can feel threatening for those who are reluctant to go to buildings in areas with low foot traffic or venture into uninhabited industrial or warehouse spaces. The open access, unlocked doors, and absence of boundaries to personal space can be disconcerting to those conditioned to avoid potentially risky strangers and opportunities for harassment. The hazards of alien equipment (laser cutters, power tools, soldering irons, etc.) might seem more dangerous if one has not been socialized in the practices of machismo and male expertise around tool use. Even the dread of being forced to exhibit knowledge of math or science or subjected to mansplaining can make the ubiquitous white boards of these spaces oppressive. These spaces might also not be accessible to public transportation infrastructures or adequately compensate interns and student workers employed there. In this way, the unpaid “playbor” expected by makerspaces excludes students who must contribute income to their families, only further exacerbating existing digital inequality.

If sponsored by more security- and safety-conscious institutions focusing on K-12 populations, such as libraries, schools, or community centers, as in the case of the LA Makerspace that Maldonado visited, the play may be sanitized but the interactions can still feel intimidating, particularly if the logics of gifted programs (and the remedial instruction and tracking for which they serve as corollaries) are reproduced. In other words, merely making the resources of a hidden curriculum visible does not make people traditionally excluded from enrichment courses in STEAM (Science, Technology, Engineering, Arts, and Mathematics) areas feel welcome. Often such spaces assume particular kinds of privileged domestic arrangements, such as access to the status of the stay-at-home mother with enough leisure time to participate eagerly and to shuttle children between activities. Older students without guides may be treated as though they are past an ideal latency period and consequently might experience particularly low retention rates (see Quattrocchi 2013; Dunbar-Hester 2014).

Maldonado’s story illustrates a common experience that is all but invisible to the predominantly white maker movement. Already deeply coded as a masculine conceptual and practical space, makerspaces draw on egalitarian rhetoric while often creating and sustaining spaces in which those who fall outside of white, affluent, and heteronormative culture find little to nothing that beckons to them. As Maldonado’s account attests, spaces where performances of privilege, like the mother-son tableaux, are a central part of the ethos of practice can actually do harm to those who venture in. To paraphrase Miriam Posner (2012) (who writes powerfully about an analogous valorization of code culture): if you want women, people of color, and queer people in your community, if it is important to you to have a diverse discipline, you need to do something beyond just bringing people to the table.

What Kind of Table Is This?

An objection to that final statement might read something like this: but, Professor Wernimont, you were the one who sent Maldonado down to the makerspace. You and Elizabeth Losh spend a week each summer leading a seminar in which all of the stuff of makerspaces is on full display. Bringing people to the maker table is part of what you do!

Fair enough. We join in many of the efforts of the critical making and physical computing crowds. We think that making, breaking, and making again are good endeavors on a number of levels. At the same time, part of our feminist praxis is to have spaces and conversations

that are theoretical; we need to connect discussions and use of technologies to our lived histories. We do not separate “yack” from “hack” any more than one might partition a stitch-n-bitch (note the connective punctuation there!). Our feminist theories and practices focus on the ways in which we live with and within systems and technologies. We privilege knowing how things work not in order to demonstrate mastery or because of a commitment to the libertarian ideology of autonomous individuals colonizing resources; we need to know how systems and technologies work because they are sites for and vectors of the exercise of power, even if the visibility of such technocultural power should not be mistaken for transparency. Understanding by whom and how those sites and vectors are shaped and how they shape us is of real import. At the same time, we see powerful possibilities in the ways in which physical computing and wearable technology do not privilege visual apperception, in so far as it enables or foregrounds engagement with the other senses and other kinds of relationships to technology (for more on physical computing see *cárdenas n.d.*; O’Sullivan and Igoe 2004; Garfinkel 2014). Of particular interest to us are the ways in which physical computing and wearable technologies afford larger and real-time group interactions in ways that are more limited when working with a single device, or reading from a single screen. At the intimate scale of gingerly handling an LED or connecting a circuit, the narrower scope of granular analysis can invite extremely intimate conversations around common matters of concern. Additionally, we value the ways in which both areas of research and practice foreground the always present but sometimes hidden interactions between human bodies and computational technologies, and we would hope to push those features even further to the fore. Finally, while we remain critical of the rhetoric of empowerment and agency that has been built into these fields, we look down our own versions of a long maker table and see wire bits, spools of filament, lights, paper fragments, and half-accomplished prototypes. We find that mess an exciting counterpoint to the prevailing discourse around “good” code (see Posner 2012; also Chapters 25 and 45, this volume).

By offering a feminist DH course we are not trying to reproduce a white, male, privileged perspective on technology and making, or a kind of “Henry Rollins’ School” of “do-it-yourself” digital humanities (DH) (Owens 2011). Instead, if we are going to use DIY rhetoric (as opposed to do-it-together or do-it-with-others), then we want our DIY to be of the “riot grrrls School,” following the models of Bikini Kill, Bratmobile, and Mecca Normal rather than working as part of a “Rollins School” paradigm of macho antiheroism. This means creating and sustaining a sophisticated DIY infrastructure that favors women—spaces, practices, and active interventions that make it possible for women to enter and promote themselves. Echoing Amy Earhart’s addition of the queer zine movement in her notion of a riot grrrl DH, we note that our riotous DH takes intersectional feminisms at its starting point and therefore eschews essentializing categories in order to dismantle/subvert structural barriers for a range of people—we do not use the riot grrrl analogy in order to replicate the white privilege seen in punk cultures (Earhart 2015; Schilt 2005). We envision infrastructure that supports as many people participating as is possible. We want to develop ways of reveling in the joyful, generative, and provocative mess that can be feminist digital technology studies.

To these ends, our reading selections for #FemDH bring a variety of feminist technology critiques in media studies, human-computer interaction (HCI), science and technology studies (STS), and related fields into conversation with work in digital humanities. Each session is organized by a keyword—a term like “archive” or “play” that is central to feminist theoretical and practical engagements with technology—and begins with a discussion of that term in light of our readings. The second half of each session is spent learning about and tinkering

with Processing, a programming platform that will allow participants to engage in their own critical making processes, often by appropriating found code or sharing trial-and-error experiences. We do not teach “good code” in the way that Edsger Dijkstra (1988) argues for a “cruel” discipline-and-punish approach to computer science that rejects the “familiar,” but we do teach Annette Vee’s (2012) critique of Dijkstra’s focus on purity and danger. Pushing against instrumentalist assumptions regarding the value and efficacy of certain digital tools, we ask our participants to think hard about the affordances and constraints of digital technologies. We ask that they jump into the mess, the joy, and the creation even as we critique.

This kind of playful, collaborative making is versatile, working in the professional (both faculty and staff) and graduate level spaces of DHSI and elsewhere. It is also serious play in the sense invoked by Barbara Christian (1996) and Donna Haraway (1991) in which play is about embodied theory and practice. Borrowing from the long table methodology of feminist performance artist, Lois Weaver, we are creating participatory learning and making events that we might describe as “long maker tables.” For example, Losh has joined with Karen Gregory, T. L. Taylor, and Nishant Shah to sponsor similar short-term rapid prototyping workshops for speculative feminist technologies. Using cardboard, scissors, markers, and other materials used in interface design, participants create “labor-saving devices” aimed at forms of invisible and immaterial labor and “life support systems” aimed at those in conditions of precarity. Wernimont is using similar methodologies in her introductory Prototyping Dreams course, which asks students “how do you build your dreams?” and explores prototyping across multiple media, including physical fabrication, prose writing, science fiction, and virtual worlds, while foregrounding the ethical, social, and political implications of design decisions. Our aim in these world-building activities is not merely to include women and girls in the sites of technoculture but also to help those in networked publics understand how they were excluded in the first place, in the interest of combining digital humanities with social justice goals.

Technologies of Wear and Care

We have sketched out a vision of a “long maker table” that draws on the feminist performance art tradition in order to break into and break open makerspaces that have been traditionally coded as white, affluent, and masculine spaces. This is an intervention not only in maker culture, but also in the rising academic and professional fields that engage the Internet of Things (IoT) (a network of data collecting physical objects/devices), physical computing, and wearable technologies. As Amelia Abreu observes, western fascination with wearable technology and IoT is:

a utopian, techno-libertarian, *entrepreneurial* vision of sensor devices playing happily with machine-learning techniques, of developing perfect metrics, and application to human bodies in order to streamline the rough edges of the physical experience.

(Abreu 2014)

Abreu is referencing a long history of wearables and so called “smart” devices that have played a part in imagining a perfected human body within an idealized techno-environment. Susan Elizabeth Ryan (2014) carefully delineates this history in longer form in *Garments of Paradise: Wearable Discourse in the Digital Age*, although Ryan also shows how feminist designers like Margaret Orth of the MIT Media Lab attempted to make practical interventions in these

visions of symbiosis and transhumanism. Ryan's text is particularly helpful for thinking through the ways in which technologies create meaning, in this case by participating in what she describes as "dress acts," or hybrid acts of communication in which the embodied behavior of wearing is bound up with the materiality of garments and devices.

Ryan argues that wearable and portable technologies, many of which are the focus of maker activities, are dense acts of communication and self-fashioning. In so doing, she works with J. L. Austin's *How to Do Things with Words*, which theorizes speech acts by foregrounding the ways in which "the issuing of an utterance is the performing of the action" (1962: 6). Ryan draws on Austin's theory of performative language to create a theory of performative dressing, in which putting on or pocketing small computing and sense devices such as a cell phone, a step counter, or bio-sensitive clothing is a form of "enhanced communication" (2014: 9). Ryan's work is powerful as an articulation of the ways in which embodied "dress acts" render the techno-body as a site of *poiesis*—a making, an action that perpetually creates the worlds and the bodies that we inhabit.

What does it mean from an intersectional feminist perspective to think about wearable technologies as "dress acts" that bring certain realities, certain modes of being, into being through a symbiosis of human bodies and materials? What possible futures become present, and what is their relationship to the techno-utopian space of commerce to which they are inextricably tied? Even as we remain critical of the hegemonic spaces of much maker culture, we see work like Ryan's articulating modes of critical making that are possible through creative appropriation of both crafted and off-the-shelf technologies.

Far from representing an off-the-rack sartorial gender-neutrality, within wearable production and use we see a more complicated gendering of certain kinds of making and wearing in which "fashion" does not operate unambiguously. The conspicuous consumption and self-regulation signaled by wearable devices such as FitBits or Jawbone self-trackers is a male-gendered wearable space, in which there is a hybridization of commerce and self-actualization with the modular, minimalist aesthetics exemplified by Apple products. The gendering of the information gathered by wearables is matched by the gender typing in the design of the circuits and boards themselves. To bring a broad conceptual discussion back to our long maker table, a comparison of Arduino LilyPad and Uno circuit boards is an obvious place to ask critical questions about why wearable technologies and sewing, rather than soldering, have become the new standard for supposedly gender-neutral inclusion efforts—where girls are introduced to programming by way of clothing, jewelry, and decoration (see projects like Made with Code or blink blink). Indeed, feminized tech fashion has come to be associated with the craft-aesthetics of Etsy, where commerce is still central but the focus is on the aesthetics (rather than performance metrics) of the female body and feminized spaces with the production of accessories, clothing, and household objects. While mainstream engagement with wearables enables dress acts that perform relatively familiar gender roles, we see opportunities for technologies of wear to be leveraged as technologies of care.

Smart technologies, many of which are small and portable, can carry the liberatory promise of alternative inputs and outputs. If we can shift the emphasis of inquiry in critical making and wearable tech toward embodied activation and away from the traditional "men look"/"women appear" structures that orient participants in visual culture, new possibilities for consciousness raising seem to emerge. More practically, smart devices may also orient users in the physical world, as in the case of the Transborder Immigrant Tool launched in 2007 by the Electronic Disturbance Theater (EDT), a digital arts collective headed by Ricardo Dominguez. EDT members repurposed inexpensive cell phones to utilize the phone's GPS technologies so that immigrants could find hidden water caches in the desert. In this way the

device serves a portion of the function of a human guide as it senses the risks and rewards embedded in the landscape of the environment; it also serves as a rhapsode, uttering poetic verses at appropriate moments to provide spiritual consolation to the wandering carrier of the device.

Wearables are very often understood as technologies of quantification developed for military use; repositioning them *also as technologies of poiesis*, rhapsodic devices of comfort and affective world-making, allows us to reclaim them as technologies of care. As Abreu observes, the computational apparatuses that see, monitor, and measure us—whether for ourselves or others—rarely emphasize information about human relationships, or find value in measuring affective, social, and care-based relationships. By calling attention to both care and *poiesis*, classically understood as “to make or to form,” we foreground the generative social and affective affordances of wearable and portable computing. Of course, as Jill Walker Rettberg points out in her work on the quantified self, even self-care can also be a form of discipline, and the transformation of human behavior into metrics enacts a disciplinary logic (Rettberg 2014). However, wearables present possibilities for poetic fashion, dress acts that draw our attention to materiality, commerce, consumption, and labor in productive ways. In recognizing that, in addition to computing, wearable technologies bring certain modes of being into existence, we are alerted to the ways physical computing and wearable technologies are about adapting, transforming, and contorting bodies, selves, and situations to the needs of the wearer, whether that be in a positive or antagonistic relation to the marketplace and other structures of power. Thinking through this in terms of an embodied and material *poiesis* refocuses attention on a making that is inextricably bound up in care of/for others and self as it transforms the world.

EDT member micha cárdenas (n.d.) has used wearable computing to enact specific ideas developed in her transgender cyberfeminist arts practice that focus on themes of danger and safety in inhabiting a gendered, sexualized, and racialized body in extremely complex rhetorical scenes that combine elaborate digital artifacts and challenging performance art. Working with her then-partner Elle Mehrmand in *virus.circus* (2010), cárdenas played a patient to Mehrmand’s doctor “testing for viral contamination.” In the performance of the piece, Mehrmand wields dildos that also function as scanners as foreplay to penetration of cárdenas’s body. Mehrmand’s clitoris is connected to a probing glove through a LilyPad Arduino and an accelerometer. The artists’ heart rates are sensed, the pressure on Mehrmand’s throat is monitored, and conductive threads sewn into cárdenas’s dress register still more information. The data are all fed into a processing system that emits the ambient soundscape of the piece. One critic describes the complex rhetorical situation of “this explicit and yet tender scene” as one in which “we began to understand more fully the implications surrounding the sexualized relationship between doctor and patient” as well as “between technology and the subject” (Hoetger 2012: 1).

Affective and haptic knowledge can be promoted via viewed performance, as in the case of cárdenas’s work, or through encounter, as is the case with Anouk Wipprecht’s *Smoke Dress* (2013). *Smoke Dress* is printed on a 3-D printer and deploys a series of small wearable sensors and smoke machines to create a defensive fashion piece:

[It is] a wireless and wearable tangible couture “smoke screen” imbued with the ability to suddenly visually obliterate itself through the excretion of a cloud of smoke. Ambient clouds of smoke are created when the dress detects a visitor approaching, thus camouflaging itself within its own materiality.

(Lamontagne 2012; Wipprecht 2013)

As a dress that “defends” personal space by reacting to infringement, Wipprecht’s piece depends upon not only the visual but also the tactile and olfactory senses. Both cárdenas’s and Wipprecht’s work exemplify tactical deployments of wearable technology and push against the privileging of the visual that dominates much of our learning and communication. Though still deeply gendered in both of these examples, wearables offer opportunities to explore the potential of haptic feedback to engender affective understandings of data (see Fuchs & Koch 2014). By explicitly working not just in visual modalities, these kinds of computational fashions may also point to new possibilities for expressing and understanding human relationships and affective elements of knowledge as well.

Wearables also have been used as specific interventions into the colonizing and discriminatory effects of western education systems. The E2 Textiles Project works with Salt River, Pima, and Maricopa Indian communities on training and projects in ethnocomputing: “Ethnocomputing recognizes local systems of computational knowledge at multiple levels, including data structures, algorithms, tools and theory, and uses” (Brayboy et al. 2011: 241). Craft and local knowledge systems are both forms of situated knowledge, and craftwork and codework merge as students sit with parents and grandparents developing both code and textile designs. Part of their answer to the question, “what might it look like to more fully engage cultural contexts in culturally responsive computing for Native American youth and communities?,” is to use wearables as small vectors for communal (and care-ful) learning and collaborative creation. As elders help to sew or design traditional figures, the students talk about the details of programming a small device like a LilyPad or the ways that conductive materials will light up a sleeve. In 2015, students created hoodies with traditional designs that lit up only when the group held hands in a conductive circle, a different but equally powerful instance of embodied *poiesis*.

Technologies of care can express human relationships (those of the healthcare scenario, face-to-face interactions, or tribal community) as well as work to facilitate care of human persons. In addition to her performative work, cárdenas is currently working developing “Local Autonomy Networks (Autonet)” as part of “an activist project focused on creating networks of communication to increase community autonomy and reduce violence against women, LGBTQI people, people of color and other groups who continue to survive violence on a daily basis” with networks that “are both online and offline, including handmade wearable electronic fashion and face to face agreements between people” (n.d.). Based on input from a series of performances, workshops, presentations, and discussions, cárdenas is prototyping “a line of mesh networked electronic clothing with the goal of building autonomous local networks that do not rely on corporate infrastructure to function” (n.d.). As she explains, to protect against rape, street harassment, and other forms of violence in the risky built environment of human social interaction, “garments, when activated, will alert everyone in range of the local mesh network who is wearing another autonet garment that someone needs help and will indicate that person’s direction and distance” (cárdenas 2014).

While mesh networks, 3-D printing, and wearables have fantastic potentials, their development is deeply wrapped up in military and industrial pursuits and, like other technologies, are not inherently feminist (for more on military development of heads up displays (HUD), e-textiles, and other wearables, see Smailagic & Siewiorek 1996; Smailagic, Siewiorek, & Starner 2007). Transforming wearables and wearable culture into technologies of care requires both poetic and political interventions that not only bring different people to the table, but also challenge the motivations and possibilities that are literally encoded into such tools.

World-Craft at the Table

We have reframed wearables in order to highlight possibilities for embodied *poiesis* and have argued for the generative potentials for wearables and portable computing tools seen in physical computing and makerspaces. In our final turn we delve into feminist engagements with larger scale world-making. The boundaries between wearables, the IoT, “in real life,” and virtual worlds are constantly in flux as new technologies and new cultures of use emerge. Even virtual worlds reflect material practices of craftivism, constructivism, and peer learning that we have emphasized with respect to our long maker table. Writing on the now-defunct virtual world of There.com, Celia Pearce observes that the successes were an effect of “expressive” avatar and animation, its ability to facilitate “bonds between people” and “open up creative channels for people who often had no idea they were even creative” (2010). A craft aesthetic can help to lower the barrier to entry, but it is easy to essentialize a single “craft aesthetic” and reinforce gendered design paradigms. As Pearce notes, part of what was so powerful about the virtual world of There.com was its willingness to be a space of play and peer learning, one in which “players find themselves inadvertently learning new things about themselves through structured social play” (2010).

As Alexandra Juhasz has observed in the course of her Ev-ent-angement series, “off-the-shelf platforms bake in more and more ease-of-use but the corporations are always simplicity-steps ahead” (2015). Ease can be a deceptive and highly privileged technological affordance. At the same time, we opened with the observation that a certain style of DiY is unsatisfactory for creating a “long table” approach that not only brings women, people of color, and queer people to the table but also enables resistance to traditional narratives of disembodied, immaterial, nonaffective, and neutral technological engagement. Like Juhasz’s ev-ent-angement, which “treasures and relies upon the close-knit, intimate, specialist interests and commitments” of its participants (2015), we have fashioned making spaces that reject corporate and militaristic logics in favor of spaces where breaking, glitching, and theorizing are integral parts of our embodied, riotous, and poetic mode of making.

We have envisioned here a long table at which a diverse range of people might break breadboards and create new circuits. Part of what we hope to facilitate are creative engagements with technologies and ways of being that we have not yet imagined. In thinking of wearable technologies and physical computing tools in terms of technologies of wear and care, we have foregrounded the relational, material, and affective engagements that structure all of our techno-interactions. We are obviously optimistic that we can support spaces that are riotous and messy, even under the conditions of western capitalism that favor minimalism and efficiency. Nevertheless, as Juhasz suggests, the degree to which we can subvert technologies and tools designed to serve consumer, corporate, and government needs remains to be seen. Further, there is significant work yet to be done on the ways in which the simplicity and ease of use designed into platforms, tools, and hardware constrains our attempts at embodied *poiesis*. Finally, we are mindful of the many guises in which colonial outposts like the makerspaces can appear and the need to remain reflective and responsive in our own practices, which cannot escape deeply embedded structures of racism and inequality.

Further Reading

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- Kember, S. and J. Zylinska (2012) *Life after New Media: Mediation as a Vital Process*, Cambridge, MA: MIT Press
 Nakamura, L. and P. Chow-White (eds.) (2011) *Race after the Internet*, New York, NY: Routledge.
 Ryan, S. E. (2014) *Garments of Paradise: Wearable Discourse in the Digital Age*, Cambridge, MA: MIT Press.
 Wyer, M., M. Barbercheck, D. Cookmeyer, H. Ozturk, and M. Wayne (eds.) (2013) *Women, Science, and Technology: A Reader in Feminist Science Studies*, 3rd edn, New York, NY: Routledge.

References

- Abreu, A. (2014) "Quantify Everything: A Dream of a Feminist Data Future," *Model View Culture*, retrieved from modelviewculture.com/pieces/quantify-everything-a-dream-of-a-feminist-data-future.
- Austin, J. L. (1962) *How to Do Things with Words*, Cambridge, MA: Harvard University Press.
- blink blink (n.d.) retrieved from www.blinkblink.cc.
- Brayboy, B., J. McK, H. R. Gough, B. Leonard, R. F. Roehl, and J. A. Solyom (2011) "Reclaiming Scholarship: Critical Indigenous Research Methodologies," in S. D. Lapan, M. L. T. Quartoli, and F. J. Riemer (eds.) *Qualitative Research: An Introduction to Methods and Designs*, San Francisco, CA: Jossey-Bass.
- cárdenas, m. (n.d.) Autonets, retrieved from faculty.washington.edu/michamc/autonets.
- cárdenas, m. (2014) "Local Autonomy Networks / Autonets," *Zero1 Biennial*, retrieved from 2012.zero1biennial.org/micha-cárdenas.
- Chardonnet, E. (2015) "GynePunk, the Cyborg Witches of DIY gynecology," *Makery*, retrieved from www.makery.info/en/2015/06/30/gynepunk-les-sorcierres-cyborg-de-la-gynecologie-diy.
- Christian, B. (1996) "Does Theory Play Well in the Classroom," in G. Bowles, M. Fabi, and A. Kaiser (eds) *New Black Feminist Criticism, 1985–2000*, Urbana and Chicago: University of Illinois Press.
- Dijkstra, E. W. (1988) "On the Cruelty of Really Teaching Computing Science." cs.utexas.edu/users/EWD/ewd10xx/EWD1036.PDF.
- Dunbar-Hester, C. (2014) "Radical Inclusion? Locating Accountability in Technical DIY," in M. Ratto M. and M. Boler (eds.) (2014) *DIY Citizenship: Critical Making and Social Media*, Cambridge, MA: MIT Press, pp. 75–88.
- Earhart, A. E. (2015) *Traces of the Old, Uses of the New: The Emergence of Digital Literary Studies*, Ann Arbor, MI: University of Michigan Press.
- Fox, S., R. R. Ulgado, and D. K. Rosner. (2015) "Hacking Culture, Not Devices: Access and Recognition in Feminist Hackerspaces," in *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 56–68. Vancouver, BC, Canada: ACM.
- Fuchs, T. and S. C. Koch (2014) "Embodied Affectivity: On Moving and Being Moved," *Front Psychol* 5, 508.
- Garfinkel, S. (2014) "Building Critical Contexts." American Studies Association Annual Conference, Los Angeles, CA.
- Haraway, D. (1991) "A Cyborg Manifesto," retrieved from www.egs.edu/faculty/donna-haraway/articles/donna-haraway-a-cyborg-manifesto.
- Hoetger, M. (2012) "Review: Virus.circus.probe. Performed by micha cárdenas and Elle Mehrmand at GUTTED. Los Angeles Contemporary Exhibition (LACE). Hollywood, CA. 19 January 2011," *Junctures: The Journal for Thematic Dialogue* 15.
- Juhasz, A. (2015) "Ev-ent-angement 3: One Current Shape for Internet Feminism and its Many Discontents," *Ev-ent-angement*, retrieved from ev-ent-angement.com/ev-ent-angement-3-one-current-shape-for-internet-feminism-and-its-many-discontents.
- Kember, S. and J. Zylinska (2012) *Life after New Media: Mediation as a Vital Process*, Cambridge, MA: MIT Press.
- Lamontagne, V. (2012) "TECHNOSENSUAL Review + Interview with Anouk Wipprecht," *FashioningTech*, retrieved from ning.fashioningtech.com/profiles/blogs/technosensual-review-interview-with-anouk-wipprecht.
- Made with Code (n.d.) retrieved from www.madewithcode.com/home.
- O'Sullivan, D. and T. Igoe (2004) *Physical Computing: Sensing and Controlling the Physical World with Computers*, Farmington Hills, MI: Gale.
- Owens, T. (2011) "The Digital Humanities as the DIY Humanities," Trevor Owens, retrieved from www.trevorowens.org/2011/07/the-digital-humanities-as-the-diy-humanities.
- Pearce, C. (2010) "Requiem for a World." *Gamasutra*. gamasutra.com/view/news/118796/InDepth_Requiem_For_A_World.php.
- Posner, M. (2012) "Some Things to Think about before You Exhort Everyone to Code," Miriam Posner's Blog, retrieved from miriamposner.com/blog/some-things-to-think-about-before-you-exhort-everyone-to-code.
- Quattrocchi, C. (2013) "MAKE'ing More Diverse Makers," *EdSurge*, retrieved from www.edsurge.com/n/2013_10_29_make_ing_more_diverse_makers.
- Ratto, M. (2011) "Critical Making: Conceptual and Material Studies in Technology and Social Life," *The Information Society: An International Journal* 27(4), 252–60.
- Rettberg, J. W. (2014) *Seeing Ourselves through Technology*, New York, NY : Palgrave Macmillan Press.
- Ryan, S. E. (2014) *Gamments of Paradise: Wearable Discourse in the Digital Age*, Cambridge, MA: MIT Press.
- Schilt, K. (2005) "The Punk White Privilege Scene: Riot Grrl, White Privilege, and Zines," in J. Reger (ed.) *Different Wavelengths: Studies of the Contemporary Women's Movement*, New York, NY: Routledge.
- Smalagic, A. and D. Stewiorek (1996) "The CMU Mobile Computers and Their Application for Maintenance," *Mobile Computing* 353 of *The Kluwer International Series in Engineering and Computer Science*, 681–98.

WEAR AND CARE

- Smailagic, A., D. Siewiorek, and T. Starner (2007) "Wearable Computers," in A. Sears and J. Jacko (eds.) *The Human-Computer Interaction Handbook: Fundamentals, Evolving Technologies, and Emerging Applications*, New York, NY: Taylor Francis.
- Smith, J. and K. MacLean (2007) "Communicating Emotion through a Haptic Link: Design Space and Methodology," *Int. J. Human-Computer Studies* 65, 376–87.
- Transborder Immigrant Tool | b.a.n.g. lab and Electronic Disturbance Theater 2.0 (n.d.)
- Vee, A. (2012) "Coding Values," *Enculturation*, retrieved from enculturation.net/node/5268.
- Wernimont, J. (2012) "Making It Like a Riot-Grrrrl," retrieved from jwernimont.wordpress.com/2012/03/03/making-it-like-a-riot-grrrrl.
- Wipprecht, A. (2013) SMOKEDRESS [2012] // Anouk Wipprecht | Aduen Darriba // tangible couture "smoke screen" [550gram].
- Wuschitz, S. (n.d.) "RUMAH HACKER," retrieved from grenzartikel.com/projects/?p=1152.