

Guest Editorial Preface

Special Issue on Socio-Technical Implications of New Embodied Technologies on Personal and Public Lives

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SOCIO-TECHNICAL IMPLICATIONS OF NEW EMBODIED TECHNOLOGIES ON PERSONAL AND PUBLIC LIVES

Where do wearable technologies, civic engagement, and professional communication intersect? This special issue investigates the impacts of wearable technology on our social and technological processes. Grounding this investigation is an interest in how embodied and pervasive computing devices call us to revisit and re-envision the processes through which we participate in our recreational, civic, and professional lives. Key, complex issues emerge where the personal and public converge, where barriers—both physical and figurative—are erected, tested, and contested, and these barriers impact and invite communication and organizational change. The articles assembled in this issue address specific communication-related and organizational domains influencing and influenced by wearable technology, including civic participation, health communication, wellness, and knowledge assessment.

In recent years, Web 2.0 and mobile technologies have expanded the possibilities for barrier-testing for civic engagement, decentralizing news acquisition and dissemination, and redefining what and who receives visibility (Cogburn, 2011). Of course, technology use is embedded in critical questions surrounding power, access, and ethics (McKee & Porter, 2008, 2017). The emergence of wearable technologies—Fitbits, Google Glass, Apple Watch, and a plethora of start-up innovations—draws particular attention to technology's ability to both enable and constrain power, access, and ethics in existing communities, as well as to inspire the rise of new communities in the process. Wearable devices are being increasingly used in private, corporate, and educational sectors. Badges such as Humanyze (www.humanyze.com), for example, are being cited for allowing employers to monitor employees' work patterns over time and consider this data in decisions regarding productivity and promotion (Kimura, 2015). Through increased monitoring and perceived surveillance, this innovation has the potential to change workplace dynamics. Thus, these types of wearable technologies take advantage of the available means of connectivity to connect users to their goals, such as getting information, staying informed, and advocating for causes. But this very ability to take advantage of the available means of connectivity sparks important questions about who is connected, what personal data this connectivity requires and collects, and just how intentional or complicit the connectivity ultimately is

(Brown, Jr., 2015). Therefore, a fundamental question driving this special issue is whether increased connectivity strengthens or threatens participatory civic engagement, and under what conditions.

Contribution to Socio-Technical Design

Scholars in the humanities and social sciences are beginning to theorize the impact of wearables in the socio-technical design of technology. In a recent *Rhetoric Society Quarterly (RSQ)* special issue on rhetoric and wearables, editors Catherine Gouge and John Jones (2016) define wearable technology “inclusively as those technologies, electronic or otherwise, whose primary functionality requires that they be connected to bodies” (p. 201). Similarly, in a *Computers and Composition Online* webtext, we identify wearables as “hybrid, network-enabled devices that can be worn on or in the body, that are integrated with the user’s everyday life and movements” (Duin, Moses, McGrath, & Tham, 2016). More recently, Jones and Gouge (2017) have co-edited another special issue for *Communication Design Quarterly (CDQ)* on wearable technologies and communication design focusing primarily on healthcare deployment cases. The present special issue seeks to broaden these discussions regarding the intersections between wearable technologies and the personal as well as the public.

When assessing human-technology interaction, critical questions emerge surrounding the impact of wearable technologies on conceptions of rhetorical situation and public space. For example, what kinds of texts are acceptable? Who speaks and who listens? What is an audience? How does communication achieve its purpose? What is the setting for communication? What is a communication path?

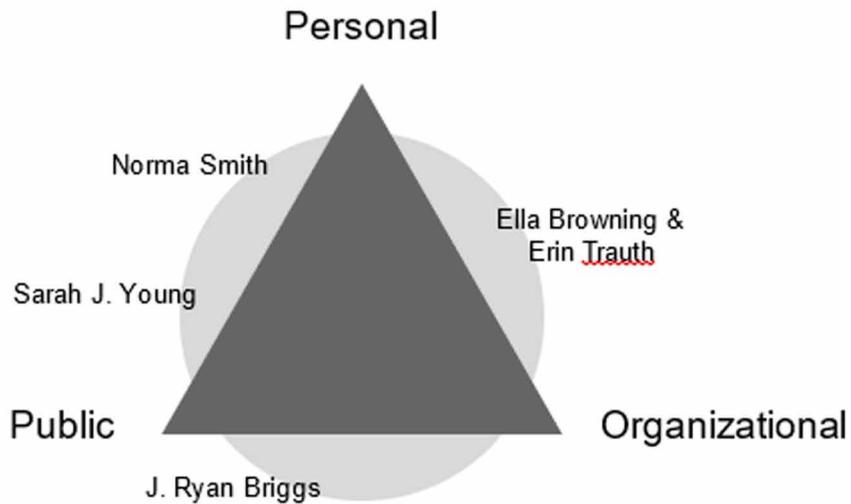
Wearables’ increased connectivity and communication extend beyond Internet access gained, and social bonds forged, to devices’ connectedness to and communication with the body (Sailors, 2009). Wearables’ location on the body, and the physical distance wearability minimizes between user and device, recalls Donna Haraway’s (1984/1991) notion of the cyborg. With their wearability, recording capabilities, and varying degrees of discretion, wearables provide us with increased ways to capture and capitalize on the kairotic or most-opportune moment for learning. But these very affordances can function as a double-edged sword when considering the ethical implications of civic engagement. Just because people can wear and use these devices nearly anywhere doesn’t necessarily mean that they should—especially since wearables, as highly individualistic devices, raise ethical questions when used in public spaces.

Socio-technical design is critical to ensuring that technological innovations such as wearables enable participatory culture without being opportunistic or exploitative of people in the process. Engaging with socio-technical design also prompts us to ask if there are some situations in which exploitation is the lesser of two evils—in which exploitation equals visibility and change. Regardless, a socio-technical approach holds promise for understanding what wearables make visible about our 21st-century civic engagement, and what—and whom—increased visibility might render invisible in the process.

Focus on Multidisciplinary Audience

Building on the preceding special issues of *RSQ* and *CDQ*, this special issue offers value to technology practitioners as well as scholars of socio-technical theories, business, and professional communication. We have selected submissions that address a multidisciplinary, sociotechnological audience. Our goal is to provide a collection of essays that is accessible for those outside our immediate discipline by focusing on a range of everyday environments impacted by the relationship between communication, people, and technology. Our authors represent scholars from across the spectrum of scholarly experience. We have included writings of graduate student, instructor, as well as tenure-track professors; such inclusivity is intended to ensure diversity in perspectives. We also worked one-on-one with authors to provide mentorship, hosting a virtual meeting where authors met one another and exchanged ideas about their respective pieces and common themes.

Figure 1. The span of discussions on wearable technologies between personal, organizational, and public domains by authors of this special issue



Summary of the Issue

The articles in this special issue each address specific dimensions and implications of the public/personal convergence with regard to wearables. As shown in Figure 1, the articles address specific socio-technical implications of wearables as new embodied technologies in personal, public, and organizational domains.

In “Technologized Talk: Wearable Technologies, Patient Agency, and Medical Communication in Healthcare Settings,” Erin Trauth and Ella Browning ground the discussion of what parties are privy to personal data in the medical professional-patient relationship. Since mobile health apps, health and fitness trackers, and telemedicine are becoming more common as supplements to or even substitutions for in-person medical care, Trauth and Browning analyze how wearables can thereby affect the communication and dynamic between patients and their medical practitioners. Wearables can increase practitioners’ abilities to understand their patients outside of the clinical setting and offer increased health and quicker diagnoses, and can therefore enhance or obstruct trust and learning in relationships between professionals and their clients, but wearables “cannot serve a consistent and reliable function until greater control and regulation over the incredibly important, personal, and private information held in them is more stringently and consistently examined and moderated across platforms and patient groups.” Therefore, this article demonstrates the opportunity for designers, instructors, and administrators to consider how and where engagement with wearable technologies and patients’ usage of them might be incorporated into future trainings.

In “Technology and Ethical Behavior in Running Sports: An Actor-Network Theory Perspective,” Norma Smith continues the discussion of public/private convergence and surveillance by examining what happens when runners’ personal data become public through technology and networks, fueling camaraderie and competition, as well as enabling surveillance that allows public audiences to weigh in on whether or not a runner gained their numbers unethically. Runners’ race times have become more publicly available with the rise of GPS watches and activity trackers, and this increased visibility of public data can motivate runners to cheat. Cognizant of the human: non-human dynamic present in behaviors surrounding technology use, Smith uses Actor-Network Theory to explore what she sees as the complex assemblage—“a human and all its co-productive relations of nonhuman actors”—

that enable runners to use technology in cheating. This article offers a nuanced understanding of the networked and asynchronous ways in which bodies, wearables, and apps intersect to communicate and make meaning. Its focus on running as both a personal and public practice also has implications for cheating as a practice in other public and organizational domains in which people engage in a shared activity or come together around common goals.

Sarah J. Young extends Smith's take on assemblages and surveillance by examining the surveillant assemblage formed in how corporations describe the bodies of digital information (i.e., "digital alter egos"). In "Identity and Our Digital Alter Egos: Exploring the Agency of Surveillance Data," Young engages with a critical question that emerges through the data produced through technology use: who has power over and controls these data? To explore this question, she analyzes the privacy policies of 2016's top five wearable vendors and identifies four locations of agency for digital information: the data as our superhero, data under our personal control, the institutional power, and the agency of the community. Young argues that wearables are ripe for investigation because they "not only produce a body of digital information which can become a shape-shifting proxy for us," but they also produce a body of data controlled by others: the user of the wearable, the institution creating the wearable device or collecting the device information, and the community members engaging with the devices. By emphasizing the multilayered complexity of parties involved in shaping a user's sense of control over their information, this article facilitates more holistic understandings of who is privy to our personal information, and how that information might be used for or against us, which is especially important as health-tracking and productivity-tracking wearables become increasingly common in educational and corporate settings.

In "Immersive Wearables: Their Political and Social Effects and What Both Mean for Democratic Societies," J. Ryan Briggs then draws attention to how precious public spaces are in democratic societies, and how precarious they might become if technological advances are left unchecked by humanities scholars. He argues that, by virtue of their surveillance potential, immersive wearables can require tradeoffs between key democratic values such as "privacy and convenience," and between "individual freedom and choice architecture" by redefining how people gather, understand, and communicate information, thereby necessitating "new humanistic dimensions" to information-gathering that better accentuate the impact that physical environment, increased personalization, direct experience, and the cognitive effects of deep immersion have on how information is gathered and considered "true." The feeling that certain experiences are objective, shared, and therefore true strengthens the public sphere by uniting citizens; by increasingly personalizing the user experience, immersive wearables' have the potential to transform seemingly objective experiences into subjective ones. In a political climate where truth is already becoming increasingly suggestive with accusations of fake news, Briggs asks "Without the availability of both public spaces which have an objective character and the public sphere(s) such spaces collectively generate, how else is a citizenry to find a common basis of national unity?" and calls for humanities departments to intervene in designing and educating the public about immersive technologies so that the Western democratic values of free expression, individual liberty, and objective experience may be upheld and enjoyed, rather than undermined.

FUTURE DIRECTION

As we look to future socio-technical implications of emerging embodied technologies in our personal and public lives, we anticipate innovative scholarship to address the widening "fabric" of wearable, carryable, implantable, ingestible, and embeddable devices (Fabric of Digital Life, 2018) as well as how "stretchable sensors, circuits and batteries are about to change our relationships with electronics and each other" (Chu, Burnett, Chung, & Bao, 2017). We expect expanded study of the political, ideological, and ethical tensions these devices, sensors, and circuits present in private and

professional settings, as how these technologies become increasingly seamless, routine, and invisible to the unsuspecting eye.

Given the growing impact wearable technologies have on business and the relationships that drive and sustain it, we foresee implications for organizational change, including trust and team building of professionals and clients, relationship management, and agendas for corporate social responsibility. In health-related fields, wearables raise questions about “whose evidence counts and what counts as evidence” in diagnosing and treating illness (Teston, 2017, p. 6). In the vein of perception and validity, we are also concerned about the way wearable technologies might affect identity construction and user agency—i.e., how we see ourselves through these embodied technologies, who has control, how users are empowered or disempowered, to name a few. Finally, we encourage scholars to continue to investigate the cultural dimensions of technology use and design, especially how marginalized populations are affected by the proliferation of popular wearable technologies.

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