

Disturbance, Translation, Enculturation: Necessary Research in New Media, Technology, and the Senses

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This article examines a research program centered at the nexus of five seemingly unrelated fields: art practice with new technologies, anthropology, cultural studies of technology, the development of new technologies that seek to make new forms of sensation, and Indigenous new media studies. First, I articulate a broader area of interdisciplinary research called sensory studies. Subsequently, and switching to the pronoun “we,” I briefly describe the aims of Sensory Entanglements: a collaborative research program that asks how different bodies and cultures can transform/resist dominant paradigms of power and oppression through the senses. Finally, I conclude with a broader set of questions around the increased role the senses are playing in the organization of new modes of political-socio-technical reason. [haptics, immersion, indigeneity, new media, senses, sensory studies]

Introduction

In his *Economic and Philosophic Manuscripts of 1844*, Marx famously wrote that “the cultivation of the five senses is the work of all previous history” (Marx 1961, 328). Marx, of course, was referring to the concept that the notion of “mankind” itself emerges from the historically materialist backdrop of the senses and how they are brutally stripped, deprived, and reorganized through industrial capitalism. Similar to Marx’s intimation that the truly “wealthy man” is “endowed with all the senses” (1961, 108) and the implication that capitalism and labor deplete the senses, this essay explores the senses’ relationship to forms of power, domination, and oppression within the context of culturally technologically shaped “sensorial otherness.”

There is, however, a further question that Marx does not approach: namely, how might new cultural-technical knowledge be created *by* and *through* the senses by way of experimental aesthetic situations whose goal is to reveal underlying sociocultural assumptions about how sense making within specific cultural milieus takes place? To answer this question, the essay describes a larger research program bringing together new media, new technology, and the senses. It

attends in particular to a specific research project within this program (called “Sensory Entanglements,” or *SE*) to address how sensorial difference operates within specific forms of what media studies scholar Bernhard Siegert (2015) has termed “cultural technics” (*Kulturtechnik*): the processes by which signs, technologies, modes of communication, and practices solidify and stabilize into specific cultural forms.

The broader research program described here is situated at the nexus of five seemingly unrelated fields: art and design practice that involves new technologies, anthropology, and the larger arena of sensory studies, cultural studies of technology, the development of new electronic and computational technologies that seek to make possible new forms of sensation, and Indigenous new media studies and theory. *SE*, which has conceptual, theoretical, methodological, and practice-based aims, asks, how can different bodies and cultures engage, transform, and resist dominant paradigms of power and oppression through the senses? It explores the senses as vehicles for present/future knowing and being and, specifically, as key elements to the crossings between Indigenous and non-Indigenous life worlds.

SE is a collective attempt to bring together an international research team consisting of Canadian

and Australian Indigenous and non-Indigenous artists, anthropologists, music technologists, and engineers to collaborate on the development of both artistic works and critical writings. The collective consists of (in alphabetical order) Jennifer Biddle, David Garneau, David Howes, Cheryl L'Hirondelle, r e a, and Chris Salter. As a collective, *we* (the team members listed above) seek to bring culture and heritage into the realm of contemporary technologically mediated and shaped cultural experience. At stake in this essay is thus a broader examination of how media art, design, and technology can meet with and create new forms of anthropological, sociological, technological, and cultural knowing and experience focused on both “the life of the senses in society, and the differential elaboration of the senses across cultures” (Howes and Classen 2013, 15). At the same time, we acknowledge what Ginsburg, Abu-Lughod, and Larkin (2002, 59) have called “the Faustian contract with the technologies of modernity”: both the colonizing affects and effects of contemporary media technologies and in particular, those that work directly on the body and senses

The approach taken here is one that has been labeled “transdisciplinary.” Indeed, despite the varied uses of the words *multi-*, *inter-*, and *transdisciplinary* in the socio-technical literature around interdisciplinary, the word *transdisciplinary* specifically refers to the way that the British sociologist of knowledge Michael Gibbons uses it: as research involving a stronger “interpenetration of disciplinary epistemologies” (Gibbons et al. 1994, 24). Effectively, this means new fused horizons become possible, beyond or transcending paradigms existing within a single discipline (Century 1999).

What is particularly important about such transdisciplinary work is that notions of individual authorship and ownership are challenged, something that is complex given the specificity of individual histories and bodies within the research. At the same time, a central aspect of the transdisciplinary stakes of this technologically augmented research program on the senses is the key involvement of a host of researchers and creators both inside and outside of the academy across multiple fields of knowledge and practice: anthropologists, cultural historians, designers, engineers, and music technologists and Indigenous and non-Indigenous artists

working with new forms of sensory technologies or what I call (after Foucault) “technologies of sense.”¹

As a team, we are developing a series of individual and collaborative works that will be exhibited in Australia and Canada in both Indigenous and non-Indigenous contexts. These works seek to entangle creative material practice with theoretical concerns focused on power and the colonialization of bodies, an entanglement that forms both the discursive as well as experiential heart of the *SE* project. In addressing the aforementioned issues, the team utilizes emerging immersive technologies such as haptics and wireless and body-based sensing (as opposed to strictly screen-based, image-dominant modes) to pioneer a radical new approach to Indigenous heritage. Here, we hope that research *on the senses* will also be experienced *by the senses* directly through the artworks developed as uniquely embodied means for cultural knowledge transfer.

While anthropological studies of “new” media have been steadily increasing as of late (Askew and Wilk 2002; Ginsburg, Abu-Lughod, and Larkin 2002; Hirschkind, de Abreu, and Caduff 2017; Horst and Miller 2013; Underberg and Zorn 2013), with the exception of Ginsburg, Abu-Lughod, and Larkin (2002) and Biddle (2016), few of these studies have focused on the cultural and artistic activism of Indigenous peoples in relationship to new media. Furthermore, the main focus of the large majority of this work on “new media” has been concentrated on the sociopolitical repercussions (and not necessarily aesthetic) of digital technologies in general, specifically challenging the myths of technoutopian progress and “newness” in the new media. Such studies range from how media systems produce new forms of publics (Hirschkind, de Abreu, and Caduff 2017) and issues of participation (Kelty 2016) to ethnographic accounts of hacking cultures (Coleman 2013) or the new mediated image cultures of religions, such as contemporary Hinduism (Jain 2017).

The work in the crossover between anthropology and new media also has another central characteristic: that is, it is overwhelmingly concentrated on screen-based media such as film and video, pointing to the fact that the screen is somehow accepted as a de facto vehicle for communication and perception due to processes of digitization. There is little work on new

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media as immersive, environmental, or bodily-somatic and the consequences of how such media operate on the body and the senses. This lacunae demonstrates the still predominantly visual bias that anthropology has in attempting to explore the linkages between technicity and somatic experience.

To address this gap, *SE* specifically concentrates on a different kind of technological-sensory apparatus: the immersive/interactive objects and installations in which aesthetic-political experience emerges through the entanglement of spectators'/participants' bodies directly within a technologized environment. Indeed, through these works, the team is attempting to explore the productive tension in how the "newness" of emerging technologies (despite their colonial origins and structures) might enable an "Indigenizing" of sensorial artistic experiences that disrupts historical boundaries, challenges entrenched borders, creates potential forms of culturally specific empathy, and potentially might de-colonize the representation of otherness.

But there is also an additional political valence to the aesthetic-technical production of these "intersensorial" (literally, between the senses) artistic works. Seen as one of the outcomes of the research program, the artworks also function for the diverse team members as "boundary objects" (Star and Griesemer 1989) for broader research questions about the entanglement between bodily sense making (which in much of the phenomenologically oriented literature is usually framed as a-historicized and technologically neutral) and the histories of colonialism and oppression. According to Star and Griesemer, such boundary objects are objects (both abstract and concrete) that "inhabit several intersecting social worlds" (1989, 393). Boundary objects are "plastic enough to adapt to local needs and the constraints of several parties employing them, yet robust enough to maintain a common identity across sites" (393). These objects exist at the borders of different social worlds and, hence, act to bring them in contact with each other.

Within the context of *SE*, the artworks have different meanings for different social and epistemological worlds (artists, designers, engineers, anthropologists, cultural historians, Indigenous artists) that both bring them into being and analyze/utilize them for their own epistemological purposes. Thus, the political-aesthetic-technical nature of this "interpenetration" of disciplines in relationship to a cultural perspective on sensory knowing, the extension of the senses through technology, and, most importantly, the political nature of the increased quantification of sensory experience all frame broader threads.

Having established this context, the rest of this essay is structured in three sections. Part I gives an

extensive but necessary background on the context of the broader research program (of which *SE* is only one facet) across the four specific theoretical areas: sensory studies and sensory anthropology; artistic work with new technologies in relationship to the senses; Indigenous new media studies and the commercial development of new "sensory technologies" that simulate stimuli beyond vision such as touch, vibration, sound, taste, and smell. Here, specific attention is paid to the question of *translation* in the sense of a transformation from one context to another. That is, given the symbolic nature of much anthropological research, how might such symbolic forms be rendered into material effects and transported from their original cultural contexts into a new one?²

Part II focuses on the objectives and ongoing process of *SE*. While the overall project has multiple trajectories and objectives, the processual nature of the research-creation process and the salient issues that have concretized around it provide a relevant and unique context to discuss some of the critical issues arising here.

Part III briefly concludes with a broader set of questions around the increased role that the senses are playing in the organization of new modes of political-socio-technical reason. This includes the relationship of the artistic projects to the larger context of cultural difference in connection to the senses and the possibility of cultural interpenetration and "critical design" (Ehn 2008) in developing new sensory-based technologies through the collaboration with anthropologists, cultural historians, and artists from different cultural contexts. In the end, we aim to articulate the potential transdisciplinary stakes for knowing and experiencing the world that arises when we entangle sensory anthropology and history with the concerns and practices of art, design, technology, and affect.

Part I. The Senses Rescued and Revealed

The background to the research program on the senses is interpolated across four specific theoretical and contextual areas: sensory studies and sensory anthropology; artistic work with new technologies in relationship to the senses; Indigenous new media studies; and the commercial development of new "technologies of sense."

Sensory studies, according to David Howes, one of the leaders in the field, "involves a cultural approach to the study of the senses and a sensory approach to the study of culture" (2013, first paragraph). While history and sensory anthropology are the cornerstones of the field, this "attention on the sensorium" encompasses a much broader range of disciplines and practices across

the arts, humanities, and social sciences as well as engineering and the natural sciences.

One of the principal aims of sensory studies is rooted in a central anthropological question; namely, how does cultural difference get articulated within different cultural forms of “making sense”? Such an inquiry is in marked contrast to what Howes calls “the monopoly that the discipline of psychology has long exercised over the study of the senses, and sense perception by [instead] foregrounding the ‘sociality of sensation’” (2013, np). At the same time, such sensory difference within cultures is complex to articulate and, as we shall soon discover, to manifest, especially in artistic contexts and in the domain of new “sensory” technologies that are designed to extend the human sensorium away from a monolithic, singular, socio-technical-culturally undifferentiated, universal construct.

The focus on sensory difference within a socio-cultural context, or what Kathryn Linn Geurts calls “native theories of perception,” where a different meaning is given to the sense organs across different cultures, can be more broadly traced to the field of the anthropology of the senses (Geurts 2002). This so-called “sensorial turn” in anthropology and the humanities, in general, initially appeared in the 1990s as a reaction against the tendency to reduce culture into texts and images; so-called “logocentrism” and “pictorialism.”

But the anthropology of the senses is by no means unified. According to anthropologist Paul Stoller, the “field” has followed two historical and epistemological trajectories. On the one hand, there has been an ethnographically centered approach that has focused on direct, affective accounts of sensory experiences as a core part of the cultures studied or what Stoller calls “sensory scholarship” (2004, 1012–13); for example, Stoller’s own intense account of becoming an apprentice sorcerer among the West African Songhay peoples (2004, 1013). In fact, as Stoller argues,

in thinking about my own sensuous experience among the Songhay, I realized that by openly and modestly foregrounding local sensibilities I could construct social knowledge with an energy that enabled me to identify elements in (African) social and political life. (Stoller 2009, 75–76)

On the other side, sensory anthropology has also featured more comparative or “relational” accounts, which seek to “build theories of perception, cognition, and culture,” particularly ones that go beyond the sense modality of vision, through culturally specific studies of the sensorium across cultures (Howes 2013). It is this productive tension between affective accounts of *in situ*

bodily experience and relational studies of different “sensory orders” in connection to culturally differentiated modes of sense perception and sense making that provides part of the productive background and methods for our work.

Art, Techno-Science, and the Senses

If the academic nature of sensory studies has mainly focused on bringing a sensory focus into the social sciences and humanities, then what role does artistic production have in relationship to a field (anthropology) that makes its creation of new knowledge mainly through writing? In fact, there have been increased calls to create a space “between art and anthropology” (Schneider and Wright 2013). Yet, the majority of this work has been anchored in the production of visual or filmic images (i.e., ethnographic film), and while much of it seeks to bring anthropology’s powerful tools of cultural critique to bear on artistic production, little of this work has been focused within the context of new technologies that go beyond screen-based forms.³

At the same time, the visual arts and performing arts have also been quick to capitalize on the sensory turn as evidenced by the rise of performance art, installation art, and, above all, new media arts. Indeed, the role of the senses within art making with new technical means is an expanding field in and of itself (Jones 2006; Schwartzman 2011). While the role of new technologies has often been downplayed in many art historical accounts of sensory environments in the visual arts (Bishop 2005), there has been a long set of historical precedents within modernism and postmodernism focused on how new technical means expand the sensorium through aesthetic strategies.

For example, much has been written about the practices of artists as wide ranging as Baudelaire, Scriabin, Kandinsky, Antonin Artaud, Varèse, John Whitney, or Gyorgy Ligeti, in which their interests in synesthetic processes catalyzed the development of entirely new artistic styles and movements (Van Campen 2013). As the twentieth-century theater sorcerer Artaud wrote, a theater of cruelty would be one that would be “addressed to the entire organism” in which technologies like light, sound, and other scenographic elements would produce “sensations of heat, cold, anger, fear, etc.” (Artaud 1958, 95). Far from being a historical footnote, Artaud’s predictions have materialized in a range of recent work from artists exploring the production of extreme sensory experiences using new technologies. As Cretien van Campen argues, the immersive nature of contemporary art operates not



FIGURE 1. *Displace*. Sensory environment developed by Chris Salter, David Howes, and TeZ. 2012. *Today's Art*. The Hague, Netherlands. Photo: Anke Burger. [This figure appears in color in the online issue.]

just in sense categories, but also on the body itself (Van Campen 2013). Works from contemporary artists such as Ryoji Ikeda, Sissel Tolaas, Diller+Scofidio, Carsten Höller, Kurt Hentschlagel, Chris Salter, TeZ and Valerie Lamontagne, Postcommodity, Towata and Matsumoto, Sonia Cilari, Rebecca Belmore, and James Turrell, as well as others, have all in one way or the other played with the limits of human sense perception, whether auditory, haptic, or other bodily aspects (Figure 1).

While the works of these artists present powerful affective, perceptual experiences, the majority of them are neither explicitly focused on the cultural aspects of how different publics encounter or “sense” such disorienting bodily experiences nor on the assumptions at play in their design and engineering. As a matter of fact, even though visual artists such as Carsten Höller refers to his own hallucinogenically inspired work as “large-scale experiments with people,” there is little self-reflexivity built explicitly into the works themselves about exactly what kind of sensory bodies are being operated on, metaphorically and affectively, or the sociocultural repercussions of the experimental apparatuses set up to enable such affective sensorial conditions to occur.

Moreover, the majority of these projects (but not all) are not explicitly developing new technologies but employing things either off the shelf or hacking/misusing existing technologies. In other words, the technologies that are deployed are seen as culturally neutral just as the individual bodies of the participants that are immersed in such works are also rendered by these technologies as blank slates: cultural *tabula rasas*. This is similar to recent arguments that research experiments (so-called perceptual tests) into the broader psychophysics of sense perception usually assume a neutral, a-cultural body that is examined, probed, and, in fact, instantiated within the condi-

tions of the laboratory. For example, recent studies on the impact of psychoacoustic procedures in developing MP3s on listening subjects (Sterne 2012) or the manner in which laboratory studies of psychophysical phenomena at the end of the nineteenth century shaped modernist aesthetic forms of knowledge (Brain 2008) bear this area of study out.

It is important to state that the discussion of artistic practices above is by no means a value judgment on the aesthetic qualities of the works described. It is, for example, not surprising that artists who are not themselves researchers or affiliated with research institutes are not focused on the more conceptual or methodological implications of the work they are undertaking. Yet, the question of how singular or collective bodies sense differently and how such difference is taken into consideration within the socio-technical construction of the artistic events themselves continually haunts and informs our work. In the framework of traditional research knowledge produced in the humanities and social sciences, this methodological conundrum thus bridges both questions of sociocultural meaning making and “research-creation” reflexivity (see below). It is this productive tension that we are working to harness through the *SE* research project. How can a body of existing practices (described in Part II) work to pose questions that open up new possibilities for art making within the contextual backdrop of the senses and new technologies?

Indigenous New Media Studies

Given the context of the project as well as the collaborators, we have also investigated the burgeoning area of Indigenous new media studies (Iglierorte 2016; Loft and Swanson 2014). As Stephen Loft argues in his introduction to the collected edition *Coded Territories: Tracing Indigenous Pathways in New Media Art*, new media produced by Indigenous artists puts forward another worldview that does not supersede Western conceptions of technology but acts as culturally distinct and complementary to such conceptions. Thus, new media (here, I refer to computationally authored and driven forms), born in Western contexts of Cold War militarism and (late) capitalist imperialism in the hands of Indigenous artists thus becomes “transformative and transformational”: a “shapeshifter” (Loft and Swanson 2014, xvi).

At the same time, Indigenous artists also have harnessed computational media as a strategy to rethink culture in light of colonial histories of conquest and occupation. For example, as curator Candice Hopkins describes, in the artist collective Postcommodity’s installation *If History Moves at the Speed of Its Weapons, Then the*

Shape of the Arrow Is Changing, the collective modeled the sonic ballistics of Indigenous weapons (the arrow, the war club, the slingshot) used during the Pueblo Revolt of 1680 to produce a sensorial experience in which “the experience of this historical moment via a sonic assault” (Hopkins 2014, 122) might be used to understand not only the past but also the present colonial moment.

Yet, the use of new technologies among Indigenous artists is not only one of colonial critique but also, as Loft argues, a means of “proprietary self-definition and cultural self-determination.” For example, one of the core issues that the *SE* team has focused on, and which Cheryl L'Hirondelle has articulated, is the manner in which objects among Indigenous peoples are imbued with life by way of their ability to hold information. Such objects were historically created “as a method for counting, recounting, and accounting” (Loft and Swanson 2014, 155). As L'Hirondelle argues, such objects become animate or “alive” by virtue of the fact that they carry knowledge, information, and messages and are witnessed—“the combination of the oral testimony and the interaction with the object created becomes multimedia and/or an event” (2014, 156). Indeed, this concept of objects' being animate by virtue of their holding knowledge and experience is one that has been hotly discussed by the *SE* team—particularly in trying to understand the ramifications of ordinary objects, which, as has been argued, might take on some semblance of sentience by way of sensing and microprocessors embedded into them.

New Sensory Technologies

The third field of knowledge that contextually frames the research program is the development of new technologies that have the senses as both their subject and object and, at first, appear to be culturally “neutral.” In fact, in examining McLuhan's much-cited argument about new technologies as an extension of the senses, it appears that everywhere we look, hear, and feel in contemporary art and life, computational technologies are quickly overtaking our senses.

For example, in 2012, IBM's “cognitive computing” research program's “5 in 5” argued that in five years, machines could “extend our ability to gather and process sense-based information,” and haptics, in particular, would enable us to “feel the surface of produce” or, eventually, “virtually” hi-five a hologram of Tupac Shakur (Schwartz 2012). More recently, a *New York Times* feature on “The Future of Touch” claimed that “to interact with the world in any meaningful way, we have to use the sense of touch” and that haptic technologies would be the

breakthrough in letting “people feel things that are not actually there” (Fergusson and Naudziunas 2015).

As a sensory modality that acts as the technological basis for some of the work described below, touch has long been viewed as a forgotten sense, one that as cultural historian Constance Classen claims, “often remains unspoken and, even more so, unhistoricized” (2012, 3). The recent focus, for example, on the science of haptics, applying force to the skin to deliver feedback and information, demonstrates that touch is now on the verge of becoming a new sociocultural paradigm. The notion of augmenting touch is increasingly found in hand-activated or worn technologies, from force feedback game controllers and smartphones to the recent “Taptic Engine” in the Apple Watch: a linear resonant actuator similar to a cell phone motor that produces haptic feedback on the wrist of the wearer (Apple 2015). In a different fashion, Salter and Howes, in addition to engineer Ian Hattwick and audio/visual artist TeZ collaborated on the development of a large-scale sensory installation called *Haptic Field*, which experimented with transferring touch across a group of audience members (Figures 2 and 3).

But the consumer-driven interest for experiencing new augmented sensorial experiences is a two-way sword. On the one hand, there is a growing focus on amplifying the non-visual senses (touch, smell, taste) through all kinds of commercial sensorial devices, whether technology that changes the taste of wine through ultrasonic injection to dream machine-like wearable devices using flicker and binaural audio to help one relax. This kind of marketing of sensory augmentation is not necessarily a new phenomenon.

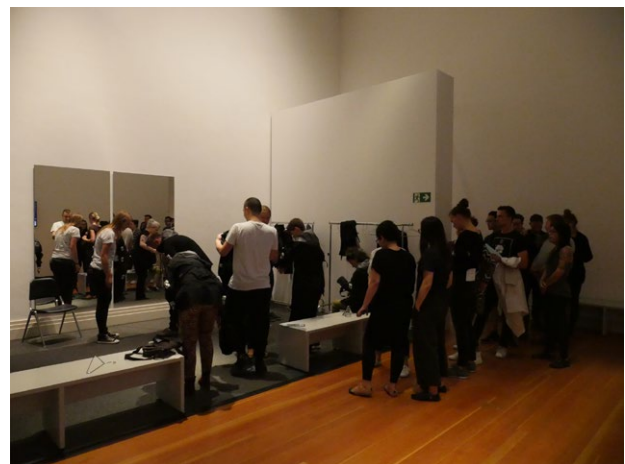


FIGURE 2. *Haptic Field*. Sensory environment developed by Chris Salter, David Howes, TeZ, and Ian Hattwick. Berliner Festspiele/ Martin Gropius Bau. Berlin, Germany. July 2017. [This figure appears in color in the online issue.]



FIGURE 3. *Haptic Field*. Sensory environment developed by Chris Salter, David Howes, TeZ, and Ian Hattwick. Berliner Festspiele/ Martin Gropius Bau. Berlin, Germany. July 2017. [This figure appears in color in the online issue.]

Already in the 1960s, for example, Philips electronics and Columbia Records entertained for a short period of time the possibility of commercializing Brion Gysin's dream machine—attempts that were never realized (Geiger 2005). At the same time, given the rapid proliferation of artificial sensing devices, there is an increased desire to monitor and capture such sensory amplification of bodies whether for tracking and surveillance purposes or for Quantified Self-like self-monitoring, enhancement, or improvement. This tension between amplifying/extending the sensorium while subordinating it to regimes of algorithmic calculation provides yet another theoretical context for the research program.

Why, however, would sensory anthropology and sensory studies be important to the almost disciplinary incongruence of fields such as anthropology, art, and Indigenous activism, as well as the design of new technologies? First, in relationship to art, Marshall McLuhan's ever-relevant statement of art as a "distant early warning system" for what is to come in the broader socio-technical context is often used as an argument for the critical role that artistic work can play as a response to broader technical trends. The aesthetic repercussions of this focus on the senses from the point of view of new technology development, however, raise again the question of how technology (particularly immersive ones that operate through and with the senses) has both served to colonize the senses and, at the same time, might also act as a force of decolonization given its potential tendency to "fragment and diversify the master narrative, offering simultaneous multiple perspectives, freshly negotiated interdependent vocabularies

and the direct experience of ambiguity, the ineffable and a sensory and mental landscape that lies above, below, and beyond ideology" (Sellars in Salter 2010, x). It is here that artistic work with the senses can, in fact, be used as a model to expand the somewhat limited thinking about the effects of such technologies on being in the world and, simultaneously, be used to point out the embedded and often hidden cultural assumptions such technologies operate within.

II. Sensory Entanglements: Cross-Cultural Translations

Supported by the Social Sciences and Humanities Research Council of Canada, *Sensory Entanglements* is a project that began in 2014 and will conclude in 2019 with both exhibitions in Canada and Australia as well as a collectively authored publication. To recapitulate, we have brought together researchers in anthropology, music technology and engineering, and cultural history as well as Indigenous and non-Indigenous artists and designers working in new media from Canada and Australia to create a kind of intercultural laboratory where we as a highly diverse group can research, creatively produce, and empirically document not only new knowledge about the senses but also new knowledge *through* the senses. The project, from both creative and conceptual directions, thus seeks to test the degree to which the senses are themselves "occupied," and, in turn, generate new intercultural sensory data that seek to transform the entrenched "colonization of the senses." Clearly, this aim is ambitious and it has crucial implications for the reconceptualization of both our understanding of the human body and the role of the senses in the history of colonial relationships.

There are three core characteristics that *SE* encompasses. The first is that it operates within a context that intertwines discursive and creative material forms of knowing and experiencing—what has been called in the Canadian academic, cultural, and policy context "research-creation." Second, the creative works proposed function in a tripartite manner as research objects, as artistic experiences, and as theoretical models or experiments designed to alter, thwart, or rework ingrained sociocultural habits of perception across multiple senses. At the same time, they continue a series of long-in-the-making questions about the relationship between sensory experience and new technologies in which traditional boundaries between bodily sensation and the environment are blurred. Finally, the projects described are themselves currently in the making, meaning that the description here will be speculative—

describing aims and ideas for what is early on in the conceptual and technical development process.

Like all projects under the epistemological rubric of research-creation that seek to bring together artistic and scholarly work in an inseparable entanglement, *SE* has theoretical, methodological, artistic, and technological ambitions. One of the main objectives, for example, involves critical work (what is called “reading against the archive”) through historical and current anthropological accounts of how specific Indigenous practices have been conceptualized and articulated within archival documentation. This is easier said than done. The concept of whether or not there is an “indigenous sensorial archive” has been under-researched and is itself culturally problematic. In other words, the study or even creation of a historical archive as defined by Indigenous sensorial practices may not function according to Western preconceptions and dominant archival forms. In fact, there is an explicit political dimension to this research given the fact that such sensory knowledge is difficult to capture not only in written form but also because it is tied to specific practices, bodies, and peoples—not up for grabs by a global capitalist sensory machinery that reduces difference.

The second goal is to produce new artistic works that seek to make the different intercultural sensory experiences from the collaborators affectively framed, felt, and experienced by a broad public and mobilize nonvisual sense modalities that are informed by the team’s lived experience through the collaboration as well as through their own paths. To this end, we are creating a series of individually created yet collaboratively curated artistic works that use a range of immersive media (sound and haptics, immersive images, objects that come alive through sensors and actuators) to examine questions of collective trauma and the affective impact of colonization on Indigenous bodies.

As these projects are currently in production, it is difficult at this point to describe concretely what they will be in more than one year from now. It is important to state, however, that the artworks are not merely commentary on the manner in which certain sensory orders have been privileged to the detriment of other sensory worldviews. As collaborator Garneau (2013) has argued in his provocative text “Extra-Rational Aesthetic Action and Cultural Decolonization,” artistic works are “extra rational” aesthetic forms of provocation in that they seek through “visceral and intuitive means” to make possible “change in other bodies, to alter moods, attitudes, dispositions and sensibilities” (2013, 15). In this sense, then, one of the *SE* through lines is a direct engagement with bodily-sensory capacities of both the creators and the audience. There are stakes in these dif-

ferent kinds of bodies, but all are “on the line,” so to speak.

The third objective of *SE* is the ethnographic analysis of the artistic works within different public exhibition settings explicitly to understand the affective experience of such culturally specific works on a culturally diverse public. For example, already the project is making links with both Indigenous and non-Indigenous cultural organizations in Australia and Canada for the exhibition of the artistic works. From an ethnographic standpoint, work in the anthropology of the senses here also provides the methods and protocols for studying the effects of the cross-cultural works to be developed on different publics (Howes and Salter 2015). Called “participant sensation,” the ethnographic technique departs in certain important respects from the standard anthropological method of “participant observation.” Instead of observing, the anthropologist makes a concerted effort to “sense with” the audience rather than remain at some “objective distance” as a researcher. Such introspection is complemented and completed by collective conversation that involves discussions, recollections, and even reflexive analysis of specific sensations and impressions as audience members are guided through the process of making sense of the novel sensory interrelationships, or intercultural ways of sensing they undergo during the experience of the artworks. At the same time, the ethnographic analysis is both collective (as opposed to individual reporting) and, more importantly, integrated directly into the experience of the artistic works as opposed to a research afterthought.

It should be clear that the political context of such a project is fraught with cultural complexities. For example, in a 2015 workshop that took place in Montreal, the question arose of whether or not a unique Indigenous sensory body exists, particularly given the fact that broader Indigenous cultures do not explicitly separate individual senses like taste or hearing. Another conundrum that was quickly apparent in the workshop discussion is the fact that specific forms of Indigenous sensory knowledge, for instance, that which arises in ceremonies or other sacred contexts, is Indigenously held knowledge not meant for public consumption or representation. In fact, that such sensory knowledge is not “up for grabs” for researchers or artists to pick and choose from at will presents a formidable challenge, especially in the development of potentially collaborative artistic works or specific technologies that convey such knowledge in another form.

Finally, the entire *SE* project is guided by a methodology and ethos that Garneau in a group workshop in 2014 referred to as “productive interference and disturbance”—that is, the relationship between art,

new technologies, and anthropology can only make sense within a specific cultural framework if each side disturbs the assumptions and practices of the other. Examples of such “disturbance” include challenging the very idea of anthropological assumptions of an Indigenous “way of sensing” or the artistic idea that there can be a non-objective, non-Indigenous space of abstract perceptual experience (described above) that can convey Indigenous forms of political-social experience.

III. Organizing Sense

This article has described a research program that has at its basis a transdisciplinary entangling among sensory studies, new media, emerging sensory technologies, and techno-scientifically driven artistic practice. It now concludes with a brief set of questions encompassing the larger socio-technical-political-aesthetic issues that have arisen in the research thus far and will undoubtedly continue as the projects evolve over the next several years.

First, the larger question of the relationship between new technologies and the organization of forms of sense and affect under what sociologist Mark Andrejevic calls the “sensor society” is at play. Indeed, if the sensor society involves both “a world in which the interactive devices and applications that populate the digital information environment come to double as sensors” and “emerging practices of data collection and use that complicate and reconfigure received categories of privacy, surveillance, and even sense-making,” (Andrejevic and Burdon 2015), then what forms of resistance are made possible by Indigenous artists whose work with such technologies deliberately aims to confront such forms of datafication?

Second, as developments in artistic practice have often anticipated developments in the humanities and social sciences, it may also be that they anticipate or critique the manner in which the senses are increasingly becoming part of a new economic form of the human under the framework of neoliberal capitalism. Here, there is in fact an updating of Marx’s claim that the senses are depleted by forms of capital. Now, it appears to be that sense experience is actually what guides and feeds a voracious machinery for new kinds of sensorially driven markets. In fact, the development of new sensory technologies for artistic experiences involving the senses may in fact directly play into (while simultaneously critiquing) the neoliberalization of such “technologies of the self”—which extend from habitual ways of doing things on specific kinds of

bodies to create daily rituals (like exercise, dieting, or self-tracking) to more elaborate strategies that enable individuals to “conduct their conduct” (Foucault, Burchell, and Davidson 2010). How then can collective forms of sense experience that are specifically enculturated and differentiated from the sense modes of global neoliberal bodies offer resistance to the overwhelming transformation of sense experience into new forms of what Gary Becker famously called “human capital”? Here, *SE*’s agenda to work with technologies of sense experience as potential “tools for survival” in order “to adapt to these tools and to adopt new modes of communication” (L’Hirondelle 2014, 160) may offer a response to this burning question.

Finally, while the research project described here operates at the intersection of current sensory technological development, it is also possible that such a program of research also incorporates the notion and methods of so-called “critical design”—that is, how design practices operate *critically* in relationship to technology and society, challenging normative frameworks of what design is and producing new forms of (speculative) objects, bodies, and publics that might or might not be co-optable or easily commercialized (Ehn 2008). Thus, to escape the normative sameness of global capitalism’s bodies and senses, it is this final question that is both most speculative and, at the same time, sets the agenda for future work into the broader possibilities of new media, technology, and the senses and the emergent forms of knowing/experiencing that this combination could imply.

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Notes

¹ In his late work *Technologies of the Self* (1988), the French philosopher Michel Foucault famously described four “technologies” that train, produce, and regulate modern selves. For Foucault, technology or “techné” involves forms of “practical rationality governed by a conscious goal.” Within this hierarchy, technologies of production enable us to conceive, make, produce, and manipulate things and objects, whereas technologies of sign production denote the manner in which we use symbols and signs to produce/construct meaning. These first two “technologies” are normally the domain of the sciences and linguistics. Technologies of discipline determine

“the conduct of individuals” which objectivize them by way of “certain ends or domination”; technologies of the self directly involve forms of self-transformation. Such techniques “permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves to attain a certain state of happiness, purity, wisdom, perfection, or immortality” (Foucault 1988, 18). Here, however, I want to introduce a fifth “technology”: that of “technologies of sense,” defined as those techniques, devices, procedures, or strategies that aim to produce bodies and selves with other kinds of perceptions—perceptions that extend routine ways of seeing, hearing, feeling, touching, and tasting the world (as well as others). This is a different understanding of sense and technology in its political context than Ranciere’s (2004) argument about the distribution of the sensible, which argues for the political power of sensation across different political and social communities. I propose this addition to Foucault not only to ask how it is that artists have used (and are using) contemporary technologies that challenge long-standing dichotomies between body and environment, self and other, and interior and exterior forms of perception but also to understand the flip side of the coin: that is, how new forms of sense and sensation are increasingly being *produced* and *measured* by such technologies.

² The main impetus of the SE research is seeded in an earlier research program entitled “Mediations of Sensation,” which sought to work with historical ethnographic accounts and to “translate” (rather than mimetically represent) those accounts into aesthetic experimental artistic installations within new cultural-technical-sensorial contexts. See Howes and Salter (2015).

³ See, for example, the Sensory Ethnography Laboratory run by filmmaker Lucien Castaing Taylor (<https://sel.fas.harvard.edu/works.html>). It is also important to point out that recent work by Indigenous researcher-creators in Canada also attempts to theorize contemporary computational media work (see also Loft and Swanson 2014).

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