

What HCI Can Learn from ASMR: Becoming Enchanted with the Mundane

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ABSTRACT

In this paper we explore how the qualities of Autonomous Sensory Meridian Response (ASMR) media—its pairing of sonic and visual design, ability to subvert fast-paced technology for slow experiences, production of somatic responses, and attention to the everyday—might reveal new design possibilities for interactions with wearable technology. We recount our year-long design inquiry into the subject which began with an interview with a “live” ASMR creator and design probes, a series of first-person design exercises, and resulted in the creation of two interactive garments for attending, noticing, and becoming enchanted with our everyday surroundings. We conclude by suggesting that these ASMR inspired designs cultivate personal, intimate, embodied, and felt practices of attention within our everyday, mundane, environments.

Author Keywords

ASMR Media; Sonic Interaction; Wearable Technology;
Enchantment; Smart Textiles

CCS Concepts

•Human-centered computing → Human computer interaction (HCI);

INTRODUCTION

“To be enchanted is to be struck and shaken by the extraordinary that lives amid the familiar and everyday...it is a state of interactive fascination”

– Jane Bennett [4]

Beyond a feeling of awe and fascination, recent scholarship has pointed to enchantment as a way of becoming so intimately bound up in the world around us that it fundamentally changes our capacity for ethical and sustainable thinking [4, 5]. Specifically, post-anthropocentric design has framed enchantment as a moment in which we are “struck and shaken” in such a way that we might be able to bring new seriousness and consideration to our treatment of the non-human (and human)

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world [15, 31, 47]. We conceive of wearables as surfaces that reside at the intersection between our bodies and the worlds in which we are immersed, creating opportunities for exploring new forms of attachment, connection, and noticing [32, 33] while emphasizing the felt and embodied [26].

We contribute to a vision of wearables for enchantment by drawing inspiration from the internet sub-culture surrounding the sensory phenomenon of “Autonomous Sensory Meridian Response” (ASMR). The ASMR sensation is often described as a relaxing, tingling sensation in the head and neck. The online ASMR community is centered around the production of videos to trigger this sensation. For example, videos featuring humans slowly whispering and tapping on familiar objects routinely garner millions of views. Regarded by many as “creepy” or “unusual” we found these videos to have a distinct aesthetic appeal in their strangeness as well as a way of subverting the chaotic and attention-hungry landscape of YouTube, creating pockets of slowness and awareness in our loud, chaotic, digital world. Our design process became an inquiry into how we might take similar tactics and aesthetics from ASMR media and move them into the realm of tangible interaction.

Throughout this paper we recount a design process that culminated in the production of two garments. Instead of causing the ASMR sensation, we explain how we came to understand our garments as “filters” that framed our perceptions of our familiar environments, in turn inspiring enchantment. Specifically, we detail our year-long inquiry into ASMR and its potential relevance to HCI, including: an interview with a “live” ASMR performer; a probe study of a sonic toolkit that encouraged users to engage their environment and make recordings inspired by the slow, detail-oriented, mundane nature of ASMR media; and a series of first-person design exercises oriented towards the production of personalized ASMR-inspired wearables. The knowledge gleaned through these experiments took the form of two sonic garments that link bodily gestures to audio manipulation: the Listening Jacket, which triggers live binaural (e.g. one microphone positioned at each ear) audio playback of its present environment when a hand is held to the ear; and the Chanting Cloak, which uses breathing to trigger the playback of binaural audio. This invites the wearer to “chant” by physically making the recorded sounds with their own voice.

We reflect on this process to describe the specific features of the everyday that ASMR helped us become enchanted with

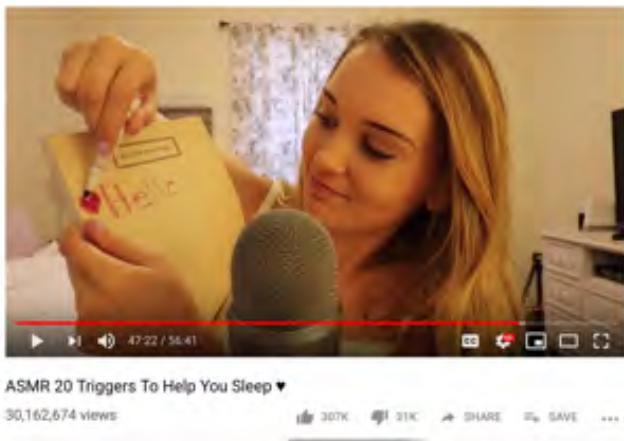


Figure 1. In this screencapture of an ASMR Video with over 30 million views, the “ASMRtist” performs and records a series of mundane actions, like writing with markers on paper.

(e.g. mundane sounds like motors or keyboard clicks) and how we believe our insights about this experience and enchantment emerged because of our first-person design approach. Furthermore, we discuss how designing with these sonic sensibilities in mind led us to conceptualize our garments as filters, as opposed to surfaces upon which information is captured or displayed. We continued to experience a heightened sense of awareness, cultivated by the garment as a filter, even when not wearing them. The experience of the filter is one that moves from body to mind, leaving a lasting impression on our patterns of everyday exploration and noticing.

By describing our journey and findings in the context of HCI and design research, we see this work making the following contributions: (1) A framing of ASMR media that highlights its potential value for HCI researchers, particularly through the lens of soma design [26] and experiences of enchantment[4, 35]; (2) detailed descriptions of our process and considerations for applying the characteristics of ASMR to interactive artifacts intended to help HCI community members think through their own approaches; and (3) a series of wearable/smart-textile artifacts that inspire broader visions of wearables as a proxy for perception of the everyday through embodied, felt, and slow experiences.

RELATED WORK

While ASMR has not yet been discussed as a primary focus within HCI research, we felt that qualities of ASMR media resonated with ongoing discussions in the areas of aesthetic interaction [8] and soma design [26]. As our design process progressed, we increasingly engaged wearables as a site for investigating how sound, movement and wearables could be used together to create experiences of enchantment.

Introducing ASMR Media

ASMR can be described as a relaxing, tingling sensation, usually in the head and neck, in response to certain sensory stimuli. Colloquially referred to as the “tingles,” some suggest that the sensation is euphoric, or even capable of alleviating anxiety, depression, insomnia, and stress [3, 12]. Physiologically,

ASMR has been linked to reduced heart rate and increased skin conductance levels [39]. Typically, people who desire the experience of ASMR look to a thriving subculture of videos on YouTube designed to trigger the response in audience members.^{1 2 3} These videos feature an “ASMRtist,” who curates an experience for the audience member, for example by slowly opening a cardboard box with a sharp knife, delicately tapping on glass bottles while whispering words of comfort, or even playfully pretending to brush the audience members’ hair (Figure 1) [11]. Throughout this paper we use the term “ASMR media” to refer to any content that is created with the intention of eliciting the ASMR sensation, such as the examples we discussed above. While ASMR can be triggered by a variety of stimuli, we chose to specifically look at the digital community surrounding ASMR and the media it produces in our early research. It is essential to note that individuals are capable of experiencing the ASMR sensation from a wide range of stimuli such as everyday experiences or media not created with ASMR in mind.

Individuals have reported experiencing the ASMR sensation from very young ages and even prior to the internet (for instance, through Bob Ross painting tutorials [27].) However, the ASMR YouTube subculture has only risen to popularity in recent years. Currently, ASMR media maintains a viral, internet popularity with hundreds of ASMR videos being uploaded daily and some of those uploads routinely getting tens of millions of views. This suggests that instead of happening upon the sensation, an increasing number of people are seeking it out. With the advent of several online communities on platforms such as Reddit, Facebook, Instagram, and YouTube, community members are able to explore a wide range of content and tailor their viewing to their preferences. One’s preference for a specific stimuli that elicits the ASMR sensation is colloquially referred to as a “trigger,” some triggers being: touching and tapping on objects, whispering, role-playing, or slow movements. According to Barratt and Davis, individual triggers vary greatly and are essential to the sensation [3]. While a trigger may cause one person to experience ASMR, it may have no effect or possibly even be strongly disliked by others [12]. Literature outside of psychology and neuroscience has already begun to assess the personal, social, and artistic significance of ASMR as well as the relationship between the embodied experience of the ASMR sensation and the digitally-mediated consumption of ASMR content. Recent scholarship seems to suggest that ASMR is an affective, embodied experience that is uniquely tied to its technologically mediated delivery and the affective power of triggers [1, 21, 28, 43]. Specifically, Andersen posits that the ASMR sensation is dependent upon the implied intimacy of the whispered voice [1]. Similarly, Smith & Snider argue that because the listener must be physically near the source the hear the quiet and mundane sounds ASMR often fixates on, the content of ASMR media often carries a sense of intimacy [43].

¹Example: tinyurl.com/EatingExampleASMR

²Example: tinyurl.com/ASMRTriggersExample

³Example: tinyurl.com/CardiBASMR

Connecting ASMR to Aesthetics and Design

As HCI expands its attention beyond visual and textual interfaces toward those that are embodied, worn, and felt, our design processes must also adapt to surface new forms of interaction that uniquely address the physical and affective qualities made possible by new material interfaces [26, 24, 48]. For instance, Höök encourages designers to consider the potential of *somatic* orientations to design, highlighting the primary role of movement and embodiment, mind and body, within the creation of novel interfaces. By acknowledging the human body as capable of both thinking and feeling, and the mutual construction of movement and thought, Höök's soma design approach creates a fuller image of the user as one that is not just the trigger for action, but a breathing, feeling organism in fluid interaction with a complex world [26]. Soma design calls for a qualitative shift away from symbolic, and language-oriented interfaces toward aesthetic, affective, and experiential interactions with the world and our everyday surroundings. While the link between designing for the body and wearables is strong, simply making a design wearable is not necessarily make the interaction somaesthetic [26, 41, 42, 45].

In addition to a somatic experience, we also see the ASMR sensation of “tingles” as an ineffable experience. Boehner et al. see aesthetic interactions as engagements with the ineffable and therefore suggest approaching design through an embodied, first-person, practice [8]. A more personal approach aids in navigating experiences that are not easily put into words and can facilitate new forms of connection and perspective [8, 37, 49].

Wearable Technology and Sonic Interaction

While wearable technology is typically approached from an informational perspective (e.g. on-body sensing and display), many within HCI have called for broader views of wearables [7, 23, 25, 46]. For instance, Devendorf et al. urged designers of color changing garments to think beyond the display, encompassing the garment as an always-on, co-present, skin-like surface that is influenced by public life [16]. Others, such as Liu et al. help the HCI community see the wearable interface as a kind of sensitizing point of connection between human and non-human bodies [32]. When approaching wearables through the lens of ASMR, we drew from these visions to conceptualize wearables as garments for augmenting everyday aesthetic experience, specifically focused on creating playful and attentive engagements. Drawing from ASMR media, we looked into sound as both an input and output to wearable technology.

Sound plays an integral role in our aesthetic and embodied experiences, yet it is often overlooked by designers as both an aspect of user experience and as a medium for communication. Sonic Interaction Design (SID) calls for designers to more thoroughly engage sound, specifically in relation to performative, embodied, and creative interactions as opposed to merely functional ones [20]. For example: Gaye et al.'s Sonic City invited users to walk through urban, everyday and public spaces with the creation of real-time electronic music [23]; *Nebula*, a garment that invites its wearer to compose with their body [46]; Smith et al. sonified the gestures of craft practitioners as they

crocheted and found that sonification was effective in facilitating reflection and discussion around craft practices [44]; and Bergström's *Sarka* mat explores sonification within the context of somaesthetics [6]. Taken together, we observe an affinity between sound and wearables or other direct bodily interfaces. We contribute to this work by specifically focusing on the way sound mediates everyday engagements, specifically focusing on attention and enchantment with the mundane. This brings our wearables in line with another mode of research developing strategies of noticing that which is previously overlooked [14, 36, 38].

DESIGN PROCESS AND METHODS

This project is an inductive inquiry into how ASMR can inform HCI. We chose to interrogate the relationship between ASMR and interaction with the hope that it could lead to interesting or novel modes of engagement in everyday settings. At each stage of the research, we tried to stay responsive and open-minded to the design situation, which led us to draw from a variety of methods including semi-structured interviews [15], research through design inspired probe studies [2, 22, 50], and autobiographical design reflections [13, 37].

While we started our process with more detached and observation oriented approaches, we found that the embodied and felt experience of ASMR that we were investigating might benefit from a personal focus—attending to the subjective and individual preferences and ASMR triggers through our own experiences and experiments. This shift toward the personal and felt in some way mirrors the calls put forth by Höök in *Designing with the Body*, specifically the attention to first-person experience: “The designer's *lived experience* must be in place to feel the fine nuances of different movements, tactile experiences, or mirrorings of our bodily processes in interactive design” [26]. At the same time, it also creates opportunities for studying one's own changes in perception and noticing from an angle that is unique from outside study [32].

Considered holistically, the methods we describe in this paper most closely resemble a first-person research through design approach [10, 13, 34]. We focused on the specific ways that attending to ASMR might help us break our own design habits or conventions in order to open up new possibilities and visions for interactive scenarios. This approach was a probing exercise of our own practice, to see if the unique focal points and situations presented in ASMR videos might inspire or bring new perspectives to our everyday interactions.

Certain features of aesthetic experiences are somatic or embodied in ways that we can't yet describe or codify. The autobiographical and first-person research through design approach we pursued allowed us to accommodate the ineffable and unknown aspects of ASMR experiences, essentially “living our garments into being” [8]. We could interact with and factor in the idiosyncratic, and deeply personal aspects of both our relationships to sound and to our personal environments. Additionally, we were able to immediately implement feedback, constantly iterating, fine-tuning, and customizing [32, 37]. Throughout our process, our understanding of how the personal and indescribable affects somatic and aesthetic experiences evolved and adapted. In the following sections,

we'll describe each research step in greater detail. While more information on early work can be found in [30], specifically how we began our inquiry into ASMR by looking at the digital media surrounding the sensation. However, in the following sections, we focus on the research that most impacted our current thinking on ASMR and design.

From Video to Live ASMR: Whisper Lodge Interview

To discuss how we might translate the aesthetics and narratives of video content into other, more everyday spaces, we conducted an interview with Melinda Lauw, co-founder of WhisperLodge. WhisperLodge is a live, immersive theatre performance focused on ASMR. Their performances are all in-person, either in small groups or one-on-one. Lauw offered her insight into the key differences between the online and in-person ASMR experiences: "The biggest difference is the vulnerability that [the audience] has to be open to. When we do it [ASMR] in person, immediately it becomes social... Whenever it's a live situation they've got to be open to putting themselves next to someone else." Talking with Lauw led us to believe that applying ASMR to design would be possible, but also suggested that users may feel strange and vulnerable while engaging these systems.

Lauw also described a process of moving away from recreating or performing ASMR to being inspired by it. Currently, she is less interested in giving people the actual ASMR, tingling sensation, as she is with providing her clients with a positive experience. So she wants to shift the main focus of her work away from ASMR and onto sensory awareness.

"...the first thing I want you see about us is that this is about paying attention, slowing down, exploring your senses, heightening awareness. And then later that we are inspired by ASMR because I feel like we've developed our practice so much now that it's gone way beyond ASMR...any time that it's a performative thing the most valuable part is not focusing really focusing on the ASMR. **We see a lot of people who actually don't have ASMR; They just come because it feels like they are being taken care of and they find some kind of enjoyment or intense relaxation.**"

Our interview with Lauw, helped us make sense of the changes in experience that might come about in translating qualities of ASMR video media into interactive, co-present, design situations. This emphasized the role of vulnerability and attentiveness, while also helping us to see the aesthetics and practices as valuable outside of the tingles.

Deploying the Sonic Toolkit Probe

Our initial intention was to investigate the idea that the audio quality of ASMR media often amplified specific aspects of interactions with mundane and everyday objects. Therefore, we envisioned, and then created a sonic toolkit: a probe-like kit including a microphone, binaural recording headphones, prompts, and objects inspired by ASMR media. We attempted to model our toolkit after aesthetic qualities of ASMR media that we had observed. Five participants were asked to use the kit to record their surroundings for one day and were then interviewed about their experiences. A more detailed



Figure 2. The Sonic Toolkit probe study asked participants to explore their environments while filtering sounds through binaural audio. Finger covers and written prompts were provided to provoke participants to explore new sounds by physically interacting with objects

explanation of these qualities and how we arrived at them is outlined in [30].

Interviews suggested that participants found the experience to be enjoyable and noted a fresh perspective, heightened awareness, or a new-found appreciation for their familiar surroundings. Our participants engaged a wide variety of settings and sounds, and all used the toolkit in their own, unique ways. Additionally, participants wanted a more portable, hands-free experience, which heavily influenced our shift toward wearable technology. Overall, the variety of sounds recorded by our participants as well as the diversity of relationships they had toward them led us rethink our relationship to ASMR. Our probe study helped us appreciate how ASMR preferences, and more generally, sonic preferences, are deeply personal.

Engaging the Personal:

Sound Walks, Impossible Garments, and Sensor(y) Play

In light of our study findings, we chose to design wearable technologies inspired by ASMR and our first-person perspectives as both designers and users. The process of designing our personal garments began with some structured investigations into the relationships between wearables and sonic interfaces. Initial ideas from sketching and brainstorming on the topic of ASMR and wearables all seemed to link haptic and sonic experiences of fidgeting as fascination. These included garments with pockets full of slime or tassels with small beads that one could fiddle and play with. These investigations also solidified our confidence in pursuing individual design directions, as each of our envisioned "pleasurable" ASMR interactions took very different form.

The following brainstorming exercise we conducted, was a walk with the binaural recording equipment, with specific visits to locations that contained sounds we wanted to explore such as old technological interfaces such as 90's Macintosh computers and rotary phones (Figure 3). The sound of the clicks and pops, or the turn of the rotary phone, prompted



Figure 3. The authors listened to and took inspiration from various objects on “sound walks” with the recording equipment (2), sketching “impossible garments” inspired by their walks which would cloak the body in objects that produced the sounds they found most pleasing (e.g. rivers, birds, etc) (1, 3), and then tested different kinds of haptic and “fiddling” inspired sensors that could be attached to a garment to trigger audio playback. The sensors used a commonly available shielding tape to support capacitive gesture sensing upon different body surfaces (4, 5, 6).

nostalgia and a sense of familiarity in these forgotten sensations. On the walk, we tapped on leaves, scuffed our shoes, but found, overwhelmingly, that we were attached to the “drone” sounds in our environment. An air conditioning vent built into the concrete near our building prompted the most fascination, and while prominently placed, was a site we had never before stopped to consider. Our third exercise was to sketch “impossible garments”—garments that would contain all the sounds and phenomena we found fascinating that we wouldn’t actually be able to place on a wearable (Figure 3). These included rivers, forests, collections of burning cigarettes, and touch pads. These garments emphasized our personal preferences and the strong link between the haptic and sonic experiences we found engaging. We then conducted a 2-hour “playtime” where we created novel forms of sensors that would be pleasing to touch and fiddle with and mapped those interactions to produce audio feedback. These included pom poms with

integrated sensors as well as washers clinking together along a hollow silicone tube. We created a template garment and pinned the sensors on, matching the sensations with our body movements and touch preferences (Figure 3).

From this point, we split off into our independent investigations. During our individual processes, we began to turn our attention away from the garment as an ASMR-inducing platform, towards the garment as one that augments sonic experiences with our everyday and familiar environments in the same way that ASMR does. As our focus shifted away from tingles, we were able to note a different and powerful sensation that was consistent amongst our experiences with ASMR; we experienced a fascination and interest in specific and unusual sounds in their familiar environments, especially toward new or previously unnoticed sounds and sounds that were once considered annoying or distracting. Additionally, we enjoyed the experience of focusing on a single sound in order to isolate or detach from the outside world and experience a feeling of inward reflection.

WEARABLES FOR INTERACTIVE FASCINATION

Throughout this paper the term “we” is used to refer to the designers of the toolkit and garments. This design process was as a collaboration between Klefeker and Devendorf, with feedback from striegl. Our autobiographical approach resulted in the design of two garments, designed by one author for the sole, personal use of that author. Klefeker designed the Listening Jacket, and Devendorf designed the Chanting Cloak. Each garment was inspired by a familiar sensation that was enjoyable for or fascinated the author: holding an object to one’s ear and focusing on the embodied experience of deep breathing. Both garments used these gestures to trigger the playback or recording of 3D, binaural audio. Each design used a pair of Roland binaural recording headphones for the 3D audio and playback. Audio was recorded and processed with Teensy 3.2 micro-controller and audio shield. This micro-controller also supported each of the sensors we built. The description and reflection of each garment in the following section is recounted in the first-person perspective of the author that designed the respective garment.

The Listening Jacket

The Listening Jacket triggers real-time, binaural audio playback in response to the gesture of holding an object or cupping a hand to the ear (Figure 4). Throughout our entire inquiry into ASMR, I found myself frequently making this gesture as a way to tune into and create sounds with random, everyday objects I encountered.

After our sound walks, and while considering creating my own garment, I had accumulated several random, visually striking, mundane objects like vintage keys, old barrettes, and a dated Macintosh keyboard that I loved the sound of and wanted to incorporate into my garment. I envisioned a garment with these objects attached to it, much like a portable ASMR stimulating station. However, I quickly found that these items were cumbersome and uncomfortable to wear, but more importantly I grew tired of their sounds after about a week. I most consistently enjoyed the search for and discovery of new sounds. In

revisiting our findings from the Sonic Toolkit Probe Study, I pivoted to just concentrate on the microphone and the experience of using it. Over the course of a week, I cumulatively spent 3 - 4 hours wearing the binaural headphones, listening to the real-time audio playback and going about my day, working on this paper, cooking, and walking. I consistently found myself holding objects to my ears, tapping on them, shaking them, and thoroughly enjoying the amplification that the binaural audio brought to their sounds and to my body as I used these items. For example, I was mesmerized by the sound of opening and drinking from my plastic water bottle, or the sound of shaking and using my inhaler. So moving forward I decided to connect the gesture of holding an item to my ear to trigger real-time binaural, audio playback.

I made my garment by hand-sewing my Teensy Microcontroller and audio shield into a jacket I had purchased. The jacket, a red-plaid blazer, is loud and fun but also something I feel comfortable wearing. The bright colors and formal shape make it feel special to me; I can't just throw it on with any of my clothes, I have to wear it with intent. I lined one of the sleeves of the jacket with a thin, cotton-wrapped copper wire and attached it to one of the Teensy's "TouchRead" enabled pins. I used this to capacitively sense when the arm was bent at the elbow, meaning that the hand is close to the ear. This gesture turns on the binaural headphones, creating an intense amplification of what I am hearing. I intended to focus on amplifying quiet sounds as a way for me to reflect on my own relationship to sound, but this eventually developed into a habit that would help me think through ideas and take a break from working. Occasionally, I am able to feel the tingly, ASMR

sensation from this but for the most part I don't. More than tingles, this sense of focus felt calming and often meditative as well as familiar and nostalgic. I was reminded of the popular folk tale that says that if you hold a seashell to your ear, you can hear the ocean. As a child, I loved doing this, even after I found out that I wasn't really hearing the ocean, because it still felt magical. I felt like I was in my own world, attentively listening for variations in the sound. It brought me a sense of wonder and excitement. Nowadays, replicating that gesture and listening for new sounds, seashell in hand or not, still sparks a small moment of wonder for me. And that moment of wonder doesn't end when I take the garment off. After using it, I find myself more receptive and tuned into the world around me. I feel more present to the moment and attentive to small details in my surroundings I hadn't noticed before.

Ultimately, I was very satisfied with the process of making and using this garment, but I don't feel like it is (or ever should be) finished. There are several aspects of the garment that I haven't been able to decide on. Some days I find anticipation and joy in waiting to hear new sounds. Other days, I crave a specific sound, or a specific quality of sound (for example, loud, abrupt, fluid, brittle) and want to seek it out. Also, I sometimes tolerate the experience of real time binaural audio for long amounts of time, with humming sounds drifting to the background, while other days the repetitive sounds are too much and they drive me to the point of a headache. Being allowed to revise the garment, and the exact way that the gesture triggers playback, offers the ability to cater it to my changing preferences and tolerances.

I cycled through a few different configurations for how the gesture triggers the playback. Sometimes the gesture triggers playback for a predetermined amount of time, allowing me to move my hands away from my face, while others require me to keep my hands near or even touching my body close to the ear in order to hear the playback. Despite these different configurations, the embodied, somatic experience of performing the gesture is consistently effective in facilitating a sense of focus and presence toward the objects and sounds I'm confronting.

What I found most interesting about the prototyping process was ability to continuously implement and cycle through these changes. Because of this, I shifted my design goal from a finished product, to an ever-changing prototype. The idea of accepting unfinishedness with an autobiographical project, was introduced to me by Desjardins' *Living in a Prototype*, wherein the author lived inside a van as it was being converted into a living space. She talks about how an "invariably unfinished home" leaves room for the user/maker to exercise more agency in the creation of their living space [13]. The freedom to endlessly tinker and change my mind allows me to indulge and embrace my chronic indecision which is something that typically causes me a great deal of stress. Accepting the unfinishedness of the garment and mentally reframing it as an eternal prototype enabled me to revel and feel peace in the process of making and configuring, finding fascination and wonder along the way.

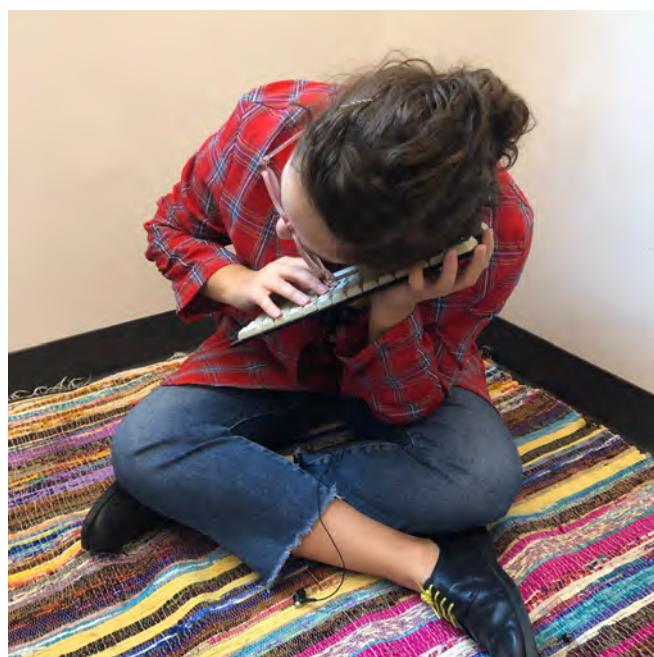


Figure 4. The listening jacket turns on live binaural audio feedback when a hand cups the ear. In this example, the gesture is being used to augment the sound of a discarded computer keyboard. Several methods were developed and tested for the cupping gesture and the styling reflects the designers personal tastes.



Figure 5. The Chanting Cloak is a garment for chanting with previously captured audio recordings. The colorful rope around the chest functions as a strain sensor, detecting when the wearer takes an especially large inhale. At the top of the inhale, the audio playback triggers and the wearer mimics the recorded sounds with their own voice, creating a resonance through the body. The hand-woven garment was given an ornate, almost ceremonial styling to honor the occasions. Capacitive sensors are embedded along the arms and spine to sense stillness and allow the wearer to scroll through audio tracks.

The Chanting Cloak

The Chanting Cloak is a robe-like garment I designed to provoke chanting with inanimate objects. The experience is inspired by my ongoing experiments with how technology can sit comfortably with experiences of rage and discomfort, specifically the feeling of needing to scream (which also was very inspirational in Kelly Dobson's Scream Body and Blendie Projects [18, 19]). Specifically, when I put on the garment, a band at my rib cage measures my inhale. At the top of my inhale, binaural playback of my recordings plays back, inviting me to scream/chant with them in tandem. The robe was inspired by three key observations during the prototyping process. First, that the tones we could hear most prominently when exploring their locales with binaural microphones were often droning sounds that we had tended to tune out, and that our participants had referred to as background noise, such as the hum of air conditioning units, the sound of air traffic, and lawn mowers far in the distance. Second, the experience of making sound along side others (instruments or humans) produces a feeling of reverberation both inside and outside of the body simultaneously. Third, the experience of holding my own rib cage while breathing led to the realization of just how dramatically my skeleton moves during a breath cycle, a subtle movement that reminded me of feelings of flux and flexibility within my own skeleton.

Our focus on ASMR and exploring wearables seems to congeal between these experiences, as the attention to droning sounds, vibrations of varying wavelengths (sound and breath), and experiences that somehow resonate both outside and within the body were not the same as, but in kinship with, the strangely meditative qualities of ASMR media. Furthermore, as a user of ASMR media that does not experience the characteristic “tingles”, and often finds the quiet or whispering sounds unsettling, the chanting experience was my own closest approximation to what I would imagine “tingles” to be as I find it to be a deeply calming, present, and enriching experience.

Technically, I created the Chanting Cloak by hand-weaving a fabric and then integrating electrical components into its structure. The style of the surface design is highly decorative

and ornate, which lent a ceremonial feel while its hand-made process made it feel like a labor of love and ritual. I integrated two types of sensors into the cloak: a knitted breath sensor tied around the rib cage (which also functions as a band to tie the garment closed and has been adapted from [29]), and three long capacitive sensors integrated along the spine and along both arm lengths. The knitted breath sensing rope was created by knitting a hollow i-cord with wool and conductive yarn. As such, the rope acts as a variable resistor or “stretch” sensor. When placed on the rib cage, which expands upon inhale, the resistor changes its value about 20 ohms. The capacitive sensors consist of a single cotton covered copper wire (much like [40]) attached to the Teensy’s “TouchRead” enabled pins. Using the system takes place in two phases: First, I travel with the binaural recording equipment in my bag, recording in moments of inspiration or idle boredom. I transfer these files to my cloak via SD card, sit somewhere private, close my eyes and use my breath to control the playback. Capacitive sensors on my arms allow me to navigate through the files, locating the files that suit my desires for expressing rage on any given day.

I used the system for three weeks, taking it on family trips, weekends at home, and on walks around my neighborhood. I gravitated towards two types of recordings: (1) loud and roaring motors, sirens, and bells that fill my daily soundscapes, the Doppler effects of a utility vehicle passing were especially fun to replicate in my body. And (2) I was drawn to capturing the idle chatter of my children and family in moments that I might otherwise forget. The simplicity and prevalence of these sounds within my life, in ways that are not captured in photos, makes them feel closer and more embodied forms of remembering. Their little voices, the stories they tell, and the pitter-patter effect of their small feet running at a frenetic pace down the hallway are so deeply connected to my everyday experience that listening again allows me to recreate a fuller picture of these moments—the music of the everyday.

The experience of chanting felt uncomfortable at times, as I worry that others, even when I am alone in my own home, would hear me and become worried. It makes me confront, to



Figure 6. Wearing the Chanting Cloak heightening the designer's attention to the droning and mundane sounds that characterized daily life but were often “tuned out” by habit. Where the photos capture the activities and scenery, the memories captured and played through the garment emphasized the noise and idle chatter left out of the image. The files are available for listening as supplementary materials

some degree, my physical discomfort with raising my voice and the inappropriateness this carries, particularly for “hysterical women.” As such, sometimes I sit and breathe and simply listen to the sound of my children playing in order to calm down in moments where I feel overwhelmed. Some days I scream/chant at full capacity, feeling the air resonate deeply through my stomach and throat, feeling embarrassed if only for a minute.

What I found most interesting about my process was the shift between my perception of what I would want prior to making, and what I actually found to bring about a felt experience of calm. My impossible garments emphasized nature, leaves, and rivers. In reality, I sought out the unnatural and often obnoxious sounds that often cause me anxiety. Rather than seeking methods to rid of them, I turn toward them and become interested in their structure and tonality. Because motors are pervasive in all aspects of my life, attending to their hums and whirrs opens a vast source of material to discover. Furthermore, I began to realize how constant these motors are in my environment, even in the most traditionally “relaxing” settings and how deeply I associate them with a given space (the distinctive hum of ones refrigerator and washing machine for instance). During a recent boat trip with my family, I took photos and audio of my surroundings. While the photos emphasized the natural and scenic beauty in a silent space, the audio reveals the sound of our generator, a passing speed boat, and conversation on a neighboring ship. Other recordings emphasize the labor of my father pulling up the anchor, the rhythmic tones created by this repetitive gesture that I’ve heard throughout my life but would have never otherwise remembered.

DISCUSSION

Understanding ASMR Experiences as Enchantment

In shifting our focus away from the “tingles” and toward the aesthetics and practices of ASMR media we came to understand our experiences as enchantment. Bennett describes enchantment as “to be struck and shaken by the extraordinary that lives amid the familiar and the everyday” [4]. We understand enchantment as an active and affective state of wonder and uninhibited presence, an overwhelming sense of fascination accompanied by a desire for inquiry and interaction.

Enchantment is mental and somatic—both our movements and thoughts are brought to a rest as we are transfixed by the wonder of a moment. Enchantment resonated with the experiences we described with our garments; we were drawn to observe familiar, and everyday objects we hadn’t expected such as air conditioning units and water bottles. And we were excited and inspired to touch and interact with them, feeling mesmerized and peaceful in the moments we shared with these objects.

Recent work in HCI has suggested that enchantment is an essential aspect of user experience [4, 35]. McCarthy et al. present a set of sensibilities for designing for enchantment. We noticed several similarities between these sensibilities, ASMR media, and our garments. For example, the sensibility, *The specific sensuousness of each particular thing*, emphasizes the importance of engaging closely and intimately with objects of affective attachment by observing their sensory details. The Listening Jacket facilitates physical closeness between the user and a given object by requiring the user to hold the object close to their ear. ASMR creators can be seen meticulously examining, touching, and tapping on an object, all the while recording with an intense visual and sonic attention to detail. The sensibility, *A sense of being-in-play*, emphasizes taking familiar categories and values and “playing” with them by challenging or subverting them. This playfulness is seen in the Chanting Cloak, where mundane, often frustrating sounds are subverted into a resource for self-expression and catharsis. While McCarthy’s work around enchantment further helped us to understand our feelings toward ASMR media and experiences with our designs, we also began to see possible connections between the qualities and properties of ASMR media as being specific tactics to engage to inspire enchanting interactions [35].

Furthermore, the most valuable experiences of enchantment we had were experiencing fascination when we least expected it: with droning sounds that once bothered us or with the sounds of an inhaler that was usually associated with stress. Not only did this bring us moments of joy or mindfulness in our otherwise uneventful days, but it also helped us to engage and appreciate our environments in newfound ways. Our understanding of enchantment is that a sensitivity to the mundane and man-made, not just the beautiful and natural, may become a necessary part of connecting to one’s environment in an anthropocentric world. This connection is essential to motivating ethical behavior as Bennett argues, but as we experienced, is more simply beneficial to one’s own happiness and well-being. [4].

Moving away from seeing ASMR media as a tool for tingles and toward an inspiring, aesthetic experience, enabled us to understand it as a powerful example of enchantment in action. Not only are designers capable of facilitating enchantment with technology itself, like McCarthy et al. describe, but through a first-person research through design process, we were able to design technology in response to each of our first-person experiences of enchantment, curating and tailoring it towards each of our preferences and personal fascinations.

Designing for the Specificity of Enchanting Experiences

We found a first-person research through design process to be necessary in the development of our garments. Understanding our encounters with ASMR media as enchantment-inducing reinforced our notion of ASMR experiences as somatic and ineffable, and therefore requiring a personal approach.

In addition to emphasizing the impact of subtle body gestures, exploring ASMR-inspired design through an autobiographical perspective invited us to become our own kind of “extreme character” [17] to draw from and indulge throughout the process. This gave us permission to design wearable systems that despite being quirky and idiosyncratic are also ideal, familiar, and comfortable for us as users. We were able to gain insight into our relationships with enchanting experiences. For example, each of our pathways to enchantment ended up being much more disparate than we had expected. Initially, we had assumed that both of us would design around a familiar or soothing sound. But because we were able to customize how much our garments pushed and challenged us versus how much they soothed or relaxed us, we were able to experiment with different modes of enchantment, some more familiar than others. Devendorf found enchantment in the process of reframing uncomfortable and obnoxious sounds as calming ones while Klefeker mostly gravitated toward sounds similar to ones she knows she likes. Practically, this approach enabled us to fine tune and implement feedback immediately. We learned very quickly that as much as we thought we knew ourselves as users, we were often wrong and frequently indecisive. This process accounted for that, and allowed us to learn by doing. We worked through indecision by quickly prototyping, wearing, and then iterating on our garments. Because we were learning so much about our preferences, our picture of the “extreme character” evolved over time. By embracing the personal and taking inspiration from ASMR media, we were able to confront and investigate the ineffable experiences and feelings that had always fascinated us but were previously too difficult or big to explain, and therefore had been left unexplored or forgotten.

In retrospect, we consider our personal design process a success, the garments became meaningful in relation to our own lives and likely would not have emerged out of concerns for a more generalized experience. Both of us felt that garments inspired enchantment that stayed with us even after we had taken them off. Our garments helped attune and open us to the non-human (and human) world around us. Our garments brought a spark of wonder and delight to our day that ultimately contributed to a more positive, sensitive outlook. While we cannot predict these outcomes would not have emerged otherwise, we feel that this attention to our personal interests, at the very least, created a space for a diversity of approaches and perspectives as opposed to a convergence on a single unified idea. This process brought us closer to ourselves and our understandings of how enchantment factors into our lives. As we stayed responsive to our changing desires, we were able to alter and fine tune our garments to accommodate us, learning something new with each iteration.

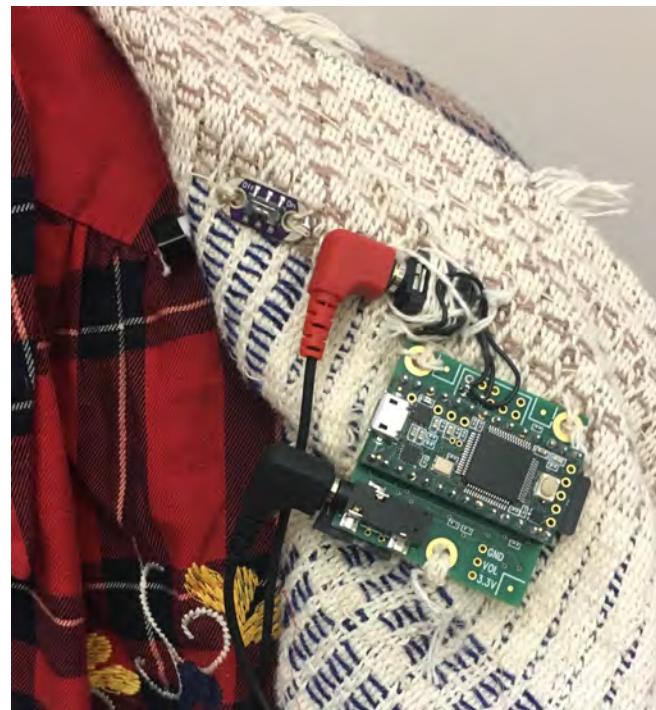


Figure 7. A detail of the electronics configuration used in both garments.

Understanding Wearable Designs as Filters

The shift away from “tingles” and onto how the aesthetics and tactics of ASMR media uniquely structure or frame the environment and experience for the audience member led us to see our designs as *filters* of environmental sounds as opposed to sound-producing *sources*. The filter of the chanting cloak was one that emphasized droning environmental sounds while the filter of the listening jacket was sonic amplification in response to gestures of curiosity. Filtering, in this sense, became a way of re-framing a familiar environment, object, gesture, or experience by emphasizing sound and attention to detail. Thus, it left room for a multitude of experiences. For some this may be the tingles or relaxation. But for others it could look like sleepiness, annoyance, or excitement, for example. Put simply, a filter is highly customized and individual. As such, we do not see our garments as prototypes that should be used by everyone or offered as products. Instead, we see them as showing a new, intimate possibility that can emerge between a body, environment, and an interactive layer—a way of filtering perception as one might add color filters to a photo.

Yet, unlike photo filters, conceptualizing the garment as a filter imprinted upon our perception—we continued to pay attention to particular objects and sensations even after we took the garment off. The lasting quality of the garment as a filter seemed equally rooted in the gestures used in interaction (e.g. cupping the ear, deep breathing) as in the search for sounds with fascinating qualities. Our garments created a link between body and space, more deeply attaching the subject to their experience of a space. For us, this was evidenced through the pairing of a new sensory response to a familiar, intuitive body posture in both of the garments.

The orientation of sound making wearable, from sound-producing surface to filter, helps us to organize and think critically about this category of design. On one hand, we see garments functioning as performance instruments or, in some cases, as taking data from the body and making it present through sound. In others, we see the garment enabling and augmenting a person's sensory capacity in a space, like skin that brings about a new, heightened sense. This connects our designs to broader conversations on sonic experimentation in the arts, such as Janet Cardiff's audio walks and sound-based explorations [9]. While ASMR helped us discover this orientation, we believe that this broader body of wearable as sonic filter or augmenting skin where the world "out there" is brought into the body, could be explored in more detail. At the very least, the emphasis on sound, as opposed to visual perception, has the capacity to bring about new connections, attachments, and ways of noticing.

CONCLUSION

In this paper, we introduced ASMR media as a valuable source of inspiration for HCI researchers, especially in the context of wearables and experiences of enchantment. We then detailed our design process and how it learned from ASMR media. Finally, by conceiving of wearable technology as a filter of sound or of perception rather than a source, we produced two garments that encourage ineffable, somatic, and enchanting interactions on a personal scale. Ultimately, our garments succeeded in inspiring enchantment and cultivating deeper connections with our mundane and everyday environments.

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