

DCM180 — The Sound of Smart Things

Individual Deliverable

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I — Integral Reflection

Expectations

Prior to this elective I had no experience with sound design. I enjoy listening to music just like nearly everyone, and even enjoyed some musical education when I was younger, being in percussion instruments (aged 8–12) and keyboard (aged 12–18). However, I never put a lot of thought into using sound as a material for design. I signed up for this elective, hoping to develop both my understanding of using sound in products as well as acquiring the ability to produce these sounds myself. In this document I reflect on the perspective I gained throughout this elective and anticipate how this effects me as a designer.

Perspectives in Sound

In this elective we reviewed sound from different perspectives. Firstly, we considered sound through the lens of their physics. Sounds are waveform vibrations produced by an event (i.e. *the source*) in a *location*, which are modified by the *environment* they are in. This perspective made me better appreciate the **information that can be embedded in sounds**: sequences of sounds (i.e. a *soundscape*) have the ability to transfer a rich atmosphere.

Triggered by the implications of this perspective, I tried to capture the atmosphere of my morning routine in my first soundscape¹. A morning where I do not take the time to brew fresh coffee makes my day feel incomplete. Beyond acquiring skills in audio editing software (Audacity and Logic Pro X), this primed me to more consciously pay attention to sounds in order to **discover sound qualities** that I enjoy. I realized that my experience of using the french press is enhanced by the sounds produced by its materials (copper and glass), reinforcing its elegant and classy aesthetic.



Later, we looked at sound from the perspective of music theory. I was introduced to the music theory principles of *tension:release*, *consonance:dissonance* and *rhythm:chaos*, and am starting to understand how these can be leveraged to **transmit abstract information using only sound**. For example, synthesizing sounds so that they sound dissonant can be used to communicate feelings of 'inaccuracy' and 'incompleteness'. Then, shifting the sound to make it appear more consonant is an effective way of providing feedback: the apparent user goal is being reached. As this elective progressed, I started to see sound as more than just a one-directional means to an end, but rather as a way to embed rich, contextual information that support user experiences.

¹ Arthur Geel. (November 18, 2019). 'Morning Routine'. Retrieved from <https://soundcloud.com/arthur-geel-384416388/morning-routine/s-cDr5Y>

Future Application

Thanks to this course I have become more aware of the role that sound plays in the experiences we have with products. I've become more sensitive to identifying qualities of sound, and have gained practical experience in recording, editing and designing sounds using both Audacity and Logic Pro X. I don't see myself becoming a sound designer nor a musician, but I will take lessons learnt from sound design principles with me in future design activities.

II — On the Role of Sound in Smart Systems

We live in a very visually oriented world: the tools we use in our everyday life generally provide feedforward and feedback through visual cues, especially when you consider the digitisation of our world. In my experience, sound that is augmented (i.e. specifically added by designers, not caused by mechanical processes of a product) is very straight-forward, usually designed to notify us of things that require our attention at that specific moment.

However, as I learnt during this elective, the role that sound plays for me is more than a notification for a specific thing. Sound, to me, is unique because it can add atmosphere to an environment, which transmit abstract information in the periphery. For example, sitting in an office, one may be able to tell the time by the sounds produced by others in the office, or one may be able to tell what the weather outside is based on the outside soundscape.

This is how I foresee the Role of Sound in Smart Systems: not necessarily for catching our attention when the system requires so, but rather as a **constant stream of non-obtrusive information** that produces a soundscape that is unique to that system at that moment in time, adding to the overall atmosphere. If implemented well, one that has prior experience with the system would be able to become aware of **gradual changes in the system because of the changes in sound**.

III — Possible Improvements to the Elective

For me, the most enjoyable and insightful moments with regard to sound design occurred during the sessions where we 'role played' as (parts of) the system, sometimes with sound. However, I found it difficult to synthesize sounds 'in-the-moment', in such a way that they fit the context (fitting in with the physics perspective of *source*, *location* and *environment*).

We mainly used pre-recorded sounds to do so, played on bluetooth speakers, controlled by our smartphones. However, this came with restrictions in adjusting the sounds to reflect changes in *source*, *location* or *environment*.

- Something I'd like to see would be better support (i.e. a tutorial and access to hardware) so that we can use some form of synthesizers in order to better create real-time soundscapes for Smart Things.