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ARL: Affection Research Lab
Affection Stations & The Signal Archive

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Abstract

The Affection Research Lab has been created to develop Affection Stations and The Signal Archive. With the mission of becoming the seed of a device-affection development center and institution. ARL provides a counterpoint to today's utilitarian computation culture and help to make affective computing and interaction more common. ARL fosters device-affection through the framework of the immaterial residuals and incidental sounds of electronic devices, not through their surface features or determined outputs. ARL facilitates revelations and provokes a paradigm shift on the electromagnetic activity and incidental sounds of an electronic device. Rather than providing awareness or caution, ARL instigates the design of electromagnetic residuals, being productive with it, designing incidental sound. ARL exposes a new mode of perceiving our devices by exposing their true essences. By exercising electronic and digital transparency ARL hopes to develop human-computer affection, interaction, and unveils a realm for design to take hold.

Key Words

Altered Perception, Affective Interaction, Productive Experiences, Immersive Intimacy

Key Themes

Sonic Interaction, Human-Computer Interaction, Designed Animism, Animism

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A. Introduction

Listening is a complex sensory event involving pattern recognition unmatched by most modern computers. The human auditory system is capable of listening to an entire band on stage while focusing on the nuances of one guitar. This seemingly effortless, sensory system is complex, powerful, and flexible; and presents sound as a critical medium of exploration as a mode of information, experience, and interaction.

The interdisciplinary research of exploring sound in the development of objects and spaces has at least a 70 year history. A history which has been propelled by the ease which technology has enabled sound to be implemented. The umbrella category of auditory display, thrives on an interdisciplinary discourse ranging from artists, scientists, designers, and engineers. However, this diversity also leads to ungrounded theoretical models — approaching it from one perspective would only allow for a single dimension and model of thought. The gray area in-between these various categories reveals a space where speculative approaches can be developed.

My research in the greater categories of sound and interaction have revealed an interest in developing idiosyncratic modes of productive experiences, affective interactions, altered perceptions, and immersive intimacies; all of which rest on a fine line of intricate immersion through the complex and en-wrapping nature of sound. Following an inquiry focused on subjective, sublime, and affective values; this thesis project is situated in a world that is increasingly technologically linked and globally mediated. Where we are inundated with quantitative functional models of display and interaction which leave no room for thought or meaning. My main focus is exploring ways of utilizing sound and interaction to break and re-connect our perception of the objects and infrastructures which define our technologically expanding landscape.

1. Intentional to Incidental

As the technological landscape expands we are discovering the characteristics of our electronic objects becoming quiet. *The Sonification Handbook* is the leading resource on the development and research of auditory displays and the many facets which create it. Sonification is a form of auditory display that uses a data-dependant generation of sound to communicate and transform data relations into perceived relations provided, that the transformation is systematic, objective, and reproducible. Sonification is then an intentional display specifically designed for an object and function. However, there is another dimension to our sonic experiences which is called the *incidental*. A more in-depth comparison between intentional and incidental sound is found in the Handbook:

“Intentional sounds are purposely engineered to perform as an information display, and stand in contrast to incidental sounds, which are non-engineered sounds that occur as a consequence of the normal operation of a system (e.g., a car engine running). Incidental sounds may be quite informative (e.g., the sound of wind rushing past can indicate a car’s speed), though this characteristic of incidental sounds is serendipitous rather than designed.”

Sonification proclaims itself as a subjective layer or a sensationalized mode of perceiving information by ear. The distinction made between the two categories allows for speculation that incidental sound is a potential path of critical applications. Incidental sound can be employed as a material to design informative displays and influence interaction; taking it beyond the serendipitous and meaningless to the meaningful and purposeful. The Affection Research Lab searches for ways of extracting incidental sound to develop a palette of materiality for affective designs.

2. Noisy Values

Incidental sound is synonymous to noise: ARL breaks the mold of incidental sound away from the *Handbook* to the more subjective applications and characteristics of *noise*. Noise has the ability to disruptively transform our perception and presents itself as a complex model of communication. Noise is the unwanted by-product of events and actions taking place, and in the electrical domain, noise is the irregular

fluctuations that accompany a transmitted electrical signal but are not part of it, and in musical terms — pitch-less sound. However, in terms of information, the following definition allows for a more flexible approach: noise is the presence of many signals (more than one), or the lack thereof; both are practical states of information. This binary flexibility allows us to embrace the complexity of noise in different ways. One such way is, noise as a *self-sustaining communicative non-communicating art*. Joseph Nechvatal discusses this notion in his book, *Immersion Into Noise*, where he proposes to “entertain a non-communicating art of noise as an aesthetic act which communicates intricately.” Affection Research Lab seeks to transform the seemingly meaninglessness of noise into something meaningful.

Noise is a self-sustaining form of information. ARL poetically explores this communicative model of noise transcending into contexts albeit, productive experiences. This transcendence doesn't occur immediately. It requires the development of attention to details both at the macro and micro levels of perception — a constant teetering at the cusp of comprehension and sensation. Immanuel Kant describes the sublime feeling as “a kind of ‘rapid alternation’ between the fear of the overwhelming and the peculiar pleasure of seeing that overwhelming overwhelmed.” In relation, Brian Massumi describes Felix Guattari's view of micro-perceptions, “micro-perception is not smaller perception; it's a perception of a qualitatively different kind. It's something that is felt without registering consciously ... Microperception is this purely affective re-beginning of the world.” When delving into the nuances of microperceptions, we become affectively invested as we are challenged to overcome the overwhelming nature of the great initial perception: “Is this my device?”

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3. An Archive through Timbre

When discussing sound we inherit terms from a world where sound thrives: music and art, and specifically focusing on the term: timbre. According to the *American National Standards Association*, “timbre is that attribute of auditory sensation in terms of which a listener can judge two sounds similarly presented and having the same loudness and pitch as dissimilar.” In essence, it's the way our ears differentiate an 'A' being played on a piano than on a trumpet.

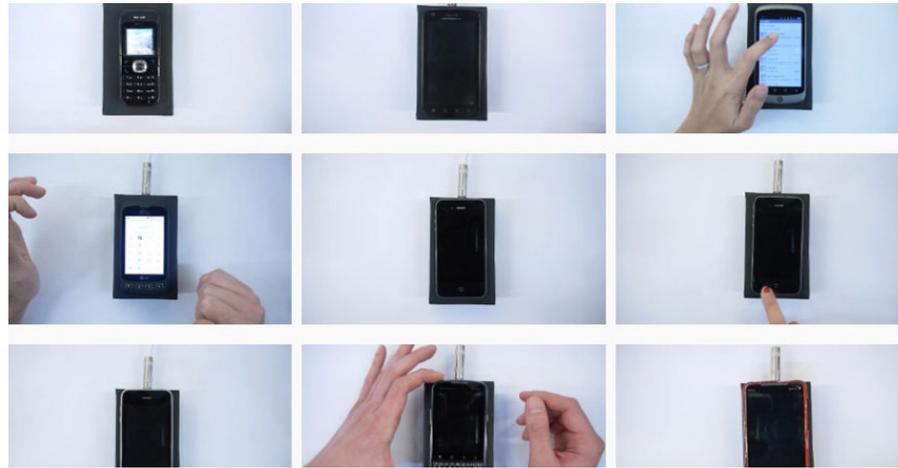
Luigi Russolo's 1913 Futurist manifesto, *The Art of Noises*, embedded in a letter to the Futurist composer Francesco Balilla Pratella, outlines a framework of observing the world and its current techno-social condition through sound. He proposes a number of conclusions on how futurist musicians can harness the incidental sound found in the machines of his time as a “substitute for the limited variety of timbres that the orchestra possesses today.” Russolo believed that listening to the incidental sound of our industrial landscape reveals a new sonic frontier capable of affective applications. Engines, motors, and gears; the machines of Russolo's time and the future techno-cultures to come, can harness these incidental timbres for artistic, speculative, and conventional means.



The Archiving Station



The final sensor used for the Archive and the Stations is a single-coil electromagnetic pickup, typically found in Fender Stratocaster guitars.



3.1 Discovering Context

The Signal Archive, specifically explored the question: “what is today’s timbre?” and is driven by the history and development of Morse Code as a point of departure. A point in time when our modes of communication were at the early stages of electrical mediation. The electrical telegraph, the mediator of that time, was a device to communicate the spoken word through a codified system of dots and dashes. The electrical telegraph and its intrinsic physical properties and technology, coupled with this codified system of writing, quickly became a “noisy object.” It became evident that listening to the noisy by-product, or the incidental sound of the device was just as effective as reading the dots and dashes. This compelled the research and collection of the incidental sounds or the timbres of our contemporary communication devices: the smart phone. As scientific investigation is concerned, the collection is based on a systematic approach of treating every device exactly the same. Contributors are requested to follow the same steps and perform the same tasks if afforded: text, email, load a website, access current geo-location, and watch a streaming video. This systematic approach revealed the different timbres between each device performing the same task. The Signal Archive defines a context for the Affection Stations: the immaterial residuals and incidental sound of the devices which mediate our relationship to and through the wireless network.

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4. Affection Stations

The methods by which our contemporary devices and our future technologies communicate with one another occurs in a layer of reality which is beyond our perceptual means: the electromagnetic spectrum. We are not capable of perceiving this layer, nor are we meant to understand its workings — its ever-omni-presence is taken for granted. Nonetheless, the layer is there, waiting for us to pick up a device and utilize it. Therefore, our only understanding of this infrastructure is based on our experiences at the surface of these devices which defines how, where, and when we have that access. Affection Stations materialize this intangible layer — making it physical, exposed, open to affective interpretative effects — an immersive intimate experience which alters the perception of our contemporary tools of communication from objective functional objects into subjective affective artifacts.

Affection Stations instigate a paradigm shift on the relationships we have with our electronic devices, by transcoding their imperceptible nature into our perceptual level of reality — becoming visible, physical, and tangible. The Stations incite the designing of electronic residuals, being productive with it, designing incidental sound, designing noise. They are for the public. They are a means to poetically inform our generation and of those to come, of the materiality of our time. They are a means to express the possibilities of new relationships with our devices — a shift on how they are constructed physically and computationally. They embrace the inevitable electromagnetic spectrum, and poetically unveil a realm for design to take hold. They allow us to accept the notion that our devices are more organic and unique than we believe, and proposes a new level of digital transparency which may inform the social development and interactions between humans and computers.

The pure nature of sound is affective, and when coupled with the complex attributes of noise becomes disruptively communicative. The seemingly organic nature of noise transitions from a source of affection to a method of leveraging a humans innate sense of bestowing the notion of life in inanimate objects and spaces; the notion of life, meaning: intention, behavior, and motivations. Situated in the realm of Human-Computer Interaction, affective or emotional computing are typically sought after as a by-product, overly saturated as sensation, or literally illustrated. Affection Research Lab attempts to leverage a user’s imagination to provoke two sides of animism: from the user’s perspective and from the device’s. The Affection Research Lab with the *Affection Stations* and *The Signal Archive* create opportunities for animism to transpire through the affective resource of sound.

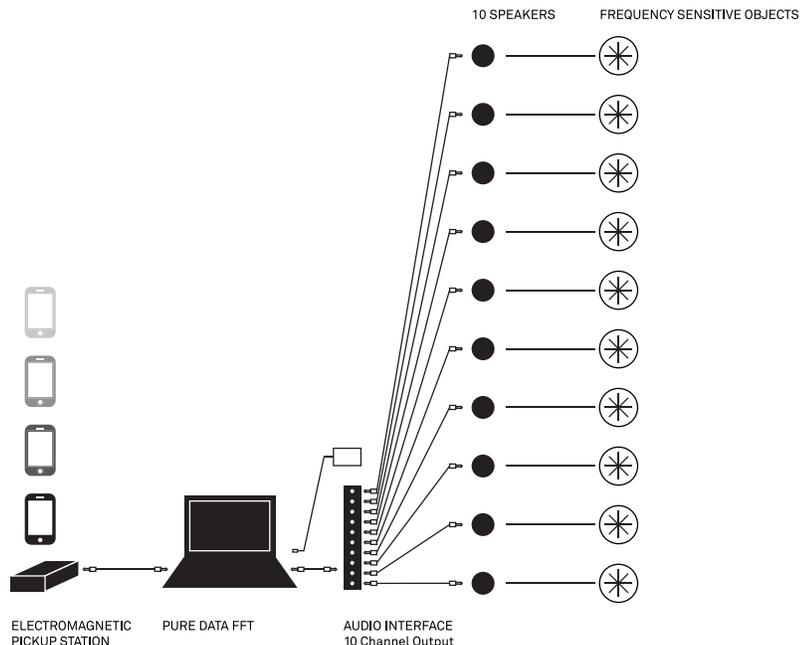


The *Mobile Affection App* is a web application accessible by any device capable of rendering *Javascript*. The app is intended to create a controlled environment for each device visiting the *Primary Stations*.

See the app: affectionstations.org/app

4.1 Primary Stations

The primary stations transcode a devices incidental sound into simple modes of representation: sound, light, and kinetics (movement). Aside from the Sound Station, the development of every station utilized the *frequency sensitive object formula*:





The Timbre Array was an early version of the Sound Station.

See it:

<http://vimeo.com/36405247>



4.1.1 Sound Station

The Sound Station presents the true and unfiltered presence of the true nature of electronic devices. The auditory display is comprised of an array of speakers which serve as an analog means of focusing on different frequency channels. Each speaker has a specific frequency response ranging from low to high and the speakers are specifically arranged to give the observer a binaural experience.



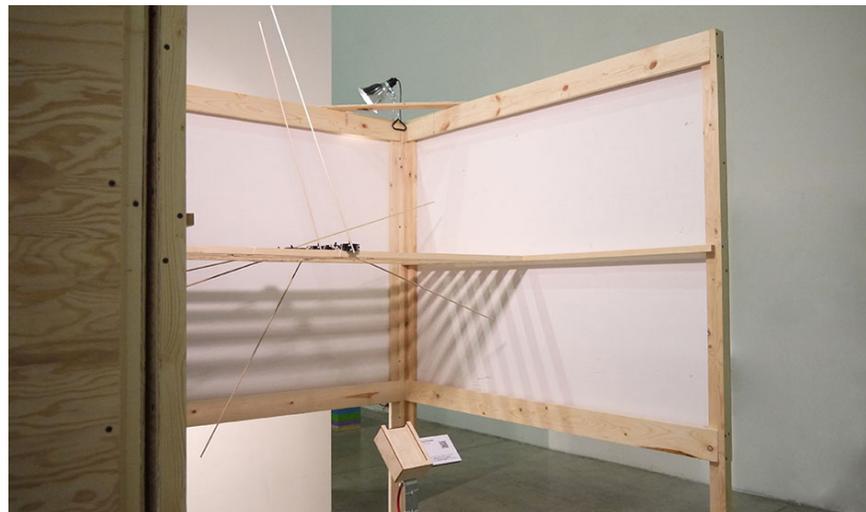
Materials for Productivity in the 21st Century is a performance coupled with directions found in the *Materials for Productivity in the 21st Century Handbook*. The handbook was later named: *Materials for Affection in the 21st Century*.

See it:

<http://vimeo.com/37976441>

Read it:

<http://tinyurl.com/9yavdfu>



4.1.2 Kinetic Station

The Kinetic Station transcodes a device's incidental sound into movement. The Kinetic Station explores the idea of immaterial residuals being channeled to define physical space — can this energy, which is intrinsically unique among any device, be used to open doors, windows, or even move walls? Perhaps our devices could one day define their own personal space.



An early version of *The Light Station* created in collaboration with designer & sculptor, Ricardo Bojorquez.



4.1.3 Light Station

The Light Station transcodes a device's incidental sound into light. The specific use of fluorescent tube lighting is to visually strengthen the immediate impact of one's experience with their device. The station demonstrates the convergence of the two sensibly opposing mediums and the potential of a device to influence a visual medium.

4.2 Secondary Stations

The Secondary Stations delve deeper off the end of animism, and employs methods of myth-making and narrative to develop idiosyncratic modes of interaction. The secondary stations use the timeless human act of storytelling to transpire and develop what the primary stations could speculatively afford in the future. The secondary stations seek to expose the birth of new rituals and human behaviors.

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The *Opera Station* used animated .gif sequences to create patterns which eventually became the score for the device's performance.



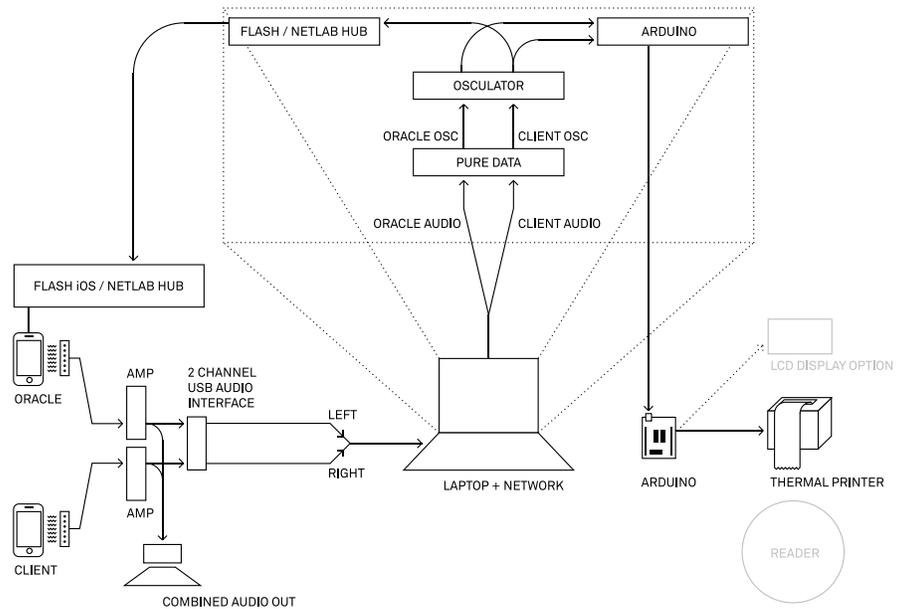
4.2.1 Opera Station

The Opera Station pushes the boundaries of the Sound Station into the strange context of performance. Like watching one's child perform their first piano recital, could we one day personify our devices to the extent of their own true voices coming to life?



The Oracle Station.

Right: This diagram shows the flow of a device's signal to create *The Oracle Station*. Some of the technology used to drive the stations included: Electromagnetic pickups, audio interfaces, *Processing*, *Arduino*, *Pure Data*, *Adobe Flash*, *Osculator*, and the *NETLab Toolkit*.



4.2.2 Oracle Station

The Oracle Station pushes the notion of “the objects inner voice” and explores the question: If there is an inner voice what is it saying and who is it speaking to?



4.2.3 The Quadrasonic Whispering Station

The Quadrasonic Whispering Station bestows a device with a single eye, and allowing that device to speak freely. Like a guard dog looking for appeasement or seeking to intimidate, the Whispering Station explores a more complex arrangement between devices, and devices with their owners. Placing owners as subordinate vessels to carry devices to specific locations for appeasement and ritual.

5. Conclusions

With the hidden agenda of exposing Animism, through affection, via noise; the Affection Stations and The Signal Archive poetically explore idiosyncratic possibilities of future and near future relationships with devices that already redefine and challenge human-computer interaction. The benefits of exploring animism exposes the potential for objects with rich and varied behavior, and enables us to embrace complex situations through serendipity, chance, and life-inspired scenarios. In no way does the Affection Research Lab and its projects state that our devices should be alive, or bestowed with artificial intelligence; but rather proposes a model of thinking that leverages the notion of life without seeking it. Proposing not to design our devices to be alive, that would be too literal, but to design our devices because we are. Perhaps harnessing the chaotic electromagnetic spectrum, the true nature of electronic devices, is a way of developing this model of thought. Particularly in the realm of sonic interaction: perhaps moving away from the user-centered approach, or the task-oriented approach might serve to develop systems and devices that harness more affective or metaphysical models for more meaningful relationships and experiences with our technology and with one another.

Credits

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