A Brief Introduction to Gremlins as Aesthetic Devices

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ABSTRACT

The sounds of electromagnetic interference, or "gremlins," result from interactions among objects in the 21st century's sphere of media ecology. This article examines how artists use these sounds in their work by employing ecologically minded creative practices reflective of the interactions that created these gremlins in the first place. It analyzes three creative methods: the artist workshop, recorded music and live performance. The conclusion offers an original score for group-improvisation with gremlins.

I always called them "gremlins" [1], those electromagnetic interference sounds that emerge from your speakers when you leave your cell phone too close to your audio workstation. Any number of devices can cause gremlins: Wi-Fi, baby monitors, anything that transmits and/or receives wireless data. Gremlins have a distinct rhythm, a language of their own—"blip ba da blip ba da blip ba da buzzzzzzz . . ." [2]. I have always found them intriguing and welcomed them into my acoustic environment.

Telephone Connections

Technically, the sounds that I refer to as "gremlins" occur when a conductive material becomes an unintended transducer of the electromagnetic activity caused by radio waves carrying digital data. In Shintaro Miyazaki's research about algo*rhythms*, or the audible rhythms produced by algorithmic computer processes, he offers an explanation of this phenomenon:

> In almost every information technological device, one can find integrated circuits, microchips, or other semiconductors, which allow one to control electric potentials, and thus the flow of electrons, in a very precise way. Changes of electric potentials applied to an electro-mechanical transducer (such as a loudspeaker) produce, if they are periodical and change between twenty and twenty thousand times a second, hearable musical tones. Even short changes of electrical polarity are hearable as short crackles [3].

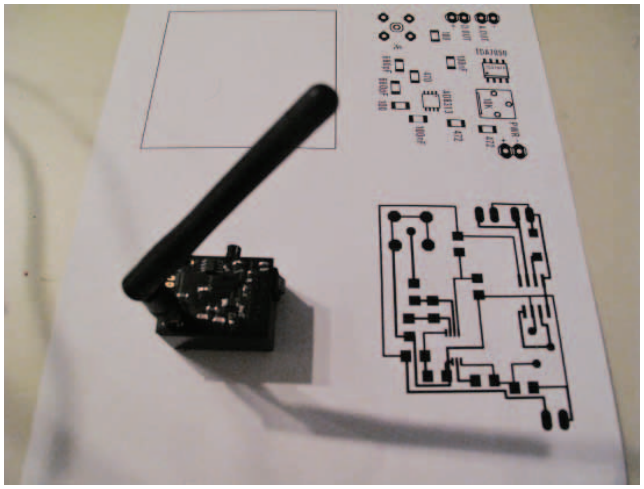
Radio frequencies outside of the familiar AM and FM bands that transport wireless data can cause such fluctuations in the electrical field to occur. Natural events, e.g. a bolt of lightning or the aurora borealis, can also spark such changes. In 1876, as Thomas Watson assisted Alexander Graham Bell with the invention of the telephone, he heard sounds "curious and captivating enough to keep him up" [4] all night. Douglas Kahn explains that these were the sounds of nature's electromagnetic sphere transduced by a half-mile-long grounded iron wire [5].

In the 21st century, however, we hardly ever hear evidence of Earth's electromagnetic environment. Our *louder* and *more local* environment of media chatter drowns it all out. Mobile devices, network protocols, encoded messages traveling at the speed of light and human desires for information assemble into a "massive and dynamic interrelation of processes and objects, beings and things, patterns and matter" [6] that Matthew Fuller calls *media ecology*. Therefore, when we hear the sounds of electromagnetic interference in the voice of a gremlin, we hear the results of sentient and nonsentient beings interacting in "a vast sprawling mesh of interconnection without a definite center or edge" [7]. Gremlins become an audible seam in the supposedly seamless global communications mesh that Watson and Bell started to weave when they invented the telephone.

Emergent Properties

When Felix Kubin put his "Mother In The Fridge" during an episode of WFMU's *Radio Boredcast,* various gremlins emerged and listeners heard the impact of everyday objects on our experiences of communication. In this improvised radio drama, Kubin called his mom on his cell phone and then placed "the phone (= my mother) in all kinds of different sonic environments" [8], such as the fridge, a trashcan, a pot on the stove, etc. As his mother's vocal qualities changed, she inadvertently described the effect of the phone's environment on the quality of the call, saying, "Felix, it's not too clear when you talk now" [9]. Gremlins accompanied her requests to "please take me out" [10], as the phone entered into new ecological relationships with the electromagnetic pulses of the different things it encountered. Kubin lets us hear the "thing-power" [11], to borrow a term from Jane Bennett, that objects exhibit in the communications mesh. *No single entity*, "no one materiality or type of material" [12], has complete control over the situation in this radio drama—not

Fig. 1. A constructed Snuff sits next to its schematics. (Photo © Jan Mun/Harvestworks)



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even Kubin himself, who maintains that he did not tamper with the gremlins in the final mix [13]. Rather, what we hear is the *interaction among entities* that causes gremlins to emerge—and when they do, they act as a musical track, lending a rhythmic backdrop and emotional reinforcement to the story. They seem to freeze—becoming solid *things* in their own right—persistent symbolic reminders of the ubiquitous ecological relationships at play during Kubin's conversation with his mother—and for that matter, in all conversations with all mothers.

Tactical Moves

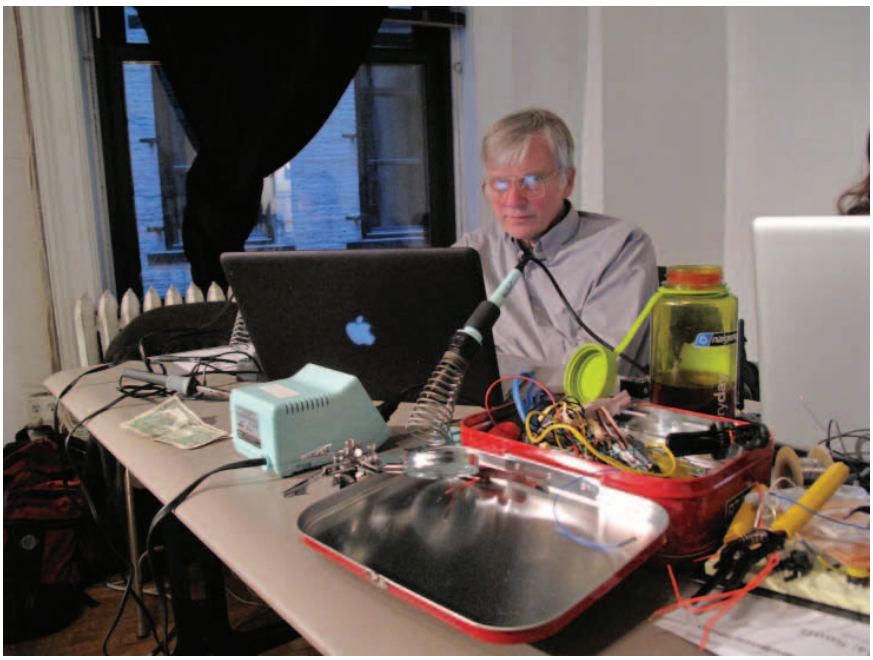
Perhaps it should it come as no surprise, then, to discover that artists who use gremlins in an aesthetic manner tend to employ practices reflective of the ecological interactions that generated these sounds in the first place. Such ecologically minded practices, whether referred to as participatory, community or socially engaged, implement and/or promote more egalitarian modes of production than currently exist in the top-down hierarchy of art world capitalism. Nicolas Bourriaud introduces *Relational Aesthetics* with a critique of "the much vaunted 'communications superhighways,' with their toll plazas and picnic areas, [that] threaten to become the only possible thoroughfare from a point to another in the human world" [14]. He outlines an alternative that "creates free areas, and time spans whose rhythm contrasts with those structuring everyday life, and encourages an inter-human commerce that differs from the 'communication zones' that are imposed upon us" [15]. Although ecological aesthetic practices like Bourriaud's have become relatively widespread during the 21st century, they have yet to become the norm in the economy of cultural enterprise. Perhaps the artists that use gremlins in an aesthetic manner are attracted to ecological art practices because they genuinely wish "to find a more horizontal representation of the relation between human and nonhuman actants" [16]. Of course, it could also be an unconscious coincidence on their part, since the same networks and technologies that make it easier to implement these ecological art practices also cause the population of gremlins to skyrocket.

My efforts to trace a linear history of the use of gremlins as aesthetic devices have proved fruitless. The "multiplicity" and "heterogeneity" of projects that use them indicates a *rhizomatic* structure at their root [17], which makes it difficult to assemble them into a single authoritative narrative. So, in lieu of one universal history of gremlin-related artwork, I will offer the following three examples as a brief survey.

Artist-Led Workshops

In February 2012 I participated in a workshop led by artists Mario de Vega and Víctor Mazón Gardoqui at Harvestworks in New York City where I built an open-source "portable device able to amplify and demodulate frequency ranges between 0.1 to 2.4 GHz" called Snuff [18] (Fig. 1). My fellow participants and I squinted and squirmed in order to solder tiny components, such as the AD8313 Logarithmic Detector chip, to a printed circuit board (Fig. 2). As the artists explained the functionality of these gremlin-wrangling devices, which transduce the electromagnetic radio waves that surround and penetrate us like "data traffic" [19], they became traffickers of information. Their discussion resonated with Bourriaud, who curated an exhibition called *Traffic* in 1996 to demonstrate the ecologically minded artistic practice of relational aesthetics [20]. Other artists have dealt with gremlins in device-making workshops as well: While Shintaro Miyazaki researched algo*rhythms* academically, he developed a series of workshops with Martin Howse [21] to construct a device that also used the AD8313 chip called Detektor [22] (Fig. 3). According to Caleb Kelly's insightful study of glitches (cousins of the gremlin) in vinyl records and CDs, such devices allow consumers to experience their media technology in unintended ways by "clearly challenging the simple one-way production-consumption model" [23]. For Claire Bishop, a workshop-based practice "suggests a new understanding of art without audiences, one in which everyone is a producer" [24]. When I left the Snuff workshop, I felt like I had a magic lens for peering into the gremlin world, but I was a little worried because I had no idea how to properly wield my newfound power.

Fig. 2. A Snuff workshop participant assembles his device. (Photo © Jan Mun/Harvestworks)



Phase of Discovery

Fellow workshop attendee Phillip Stearns put it best: "We were given this tool and it was up to us to figure out how to integrate it into our practices" [25] (Fig. 4). I initiated a discovery phase with my device, mixing gremlins back into the human-hearing range of environmental field recordings during a short project called "Gremlins Attack Soundscape" [26]. My results showed that locations with large amounts of human-produced sounds corresponded to a high level of gremlin activity, whereas locations with fewer human-produced sounds and more sounds of "Nature" [27] corresponded to fewer gremlins.

Recorded Music

At this point, I realized that my anthropomorphizing of the gremlins had caused them to take on a life of their own. I started to see them "as their own end product, worthy of consideration, scrutiny, and even awe" [28]. I began to care deeply about the way that the

art world appropriated these sounds, especially when it came to music. The music industry has a well-deserved reputation for coopting, popularizing and ultimately wearing out sounds—this has happened many times before. It came as some relief, then, to find that so far the most mainstream band to incorporate gremlins into their music is a reclusive Scottish collaboration between two brothers, Boards of Canada. Commonly abbreviated BoC, this band continues to use analog equipment in the digital age and maintains a relatively low profile, despite having tracks featured in car and clothing commercials. On Record Store Day 2013, they announced their new album *Tomorrow's Harvest* by transmitting a convoluted series of secret messages, which were collectively decoded by their dedicated fans online. The puzzle began with the discovery of a 12-inch record at Other Music in New York City. When the lucky buyer "played the record, pretty music burst forth, followed by six numbers, 936557, spoken in a robotic voice" [29]. In the following days, passionate Internet sleuths and BoC listeners converted these messages into longitude and latitude coordinates, plotted them on a map, connected the dots and discovered the outline of a hexagon [30]. (BoC works in a studio called Hexagon Sun.) By the release date, BoC enthusiasts had solved this mystery and could look forward to new mysteries in the new album.

Tomorrow's Harvest includes a song called "New Seeds," described as "a symphony of mobile phone interference (or some equivalent digital noise)" [31]. It begins with the sound of gremlins, whose insistent rhythms are mimicked by other instruments. New musical passages organically emerge, growing from the sonic seeds of electromagnetic interference. Mike Sandison, one of the brothers in the band, explains that the song was composed by recording instruments, "feeding those sounds through stacks of destructive hardware and resampling them to make unrecognizable new sounds" [32]. This process gives gremlins the opportunity to evolve in the mind of the listener, who might have thought they were an audio system malfunction or even a mistake in the recording itself. Upon hearing the song again and realizing that the gremlins were intentional, the listener's audio palate expands because "through repetition we begin to understand the mistake and aestheticize it" [33]. "New Seeds," then, is the result of multiple ecological relationships. It starts with two people who come together

Fig. 3. A constructed Detektor. (Photo © Martin Howse)

to improvise or exchange musical notes, continues when the results of this human partnership interact with circuits that exert their own power on the texture of the audio, and concludes when the amalgamation of elements reaches the ears of fans who gain an opportunity to interpret the sounds of gremlins in a new context.

Live Performance

In recorded music, listeners can learn to appreciate gremlins without fully grasping their significance as indicators of media ecology. During a workshop, participants can gain a deeper understanding of gremlins' inner workings, but might not contemplate their musical appeal. In a live performance, though, these practices intermingle and invite people to learn about *both* the gremlin's materiality and its aesthetic potential. Christina Kubisch began noticing gremlins when they crept into her "'induction' installations: electrical cabling fixed to walls or hung in spaces within which sounds or music were routed and received by individual hand-held remote telephone amplifiers" [34]. Their tenacious interruptions piqued her interest, and she even created a live performance in which they could thrive. *Electrical Walks* turned the spotlight onto the gremlins, bringing the algo*rhythmic* sounds of the 21st century's communications mesh center stage. Attendees to these performances wear a special set of headphones custom-designed by Kubisch with "coils, and amplifiers and some other little secrets" [35]. They get a map of the area, usually located in a city center, marked with points of electromagnetic interest as a rough guide for wandering around and listening to gremlins freely in any manner they choose. According to Bourriaud, the abundance of urban wandering practices conducted by ecologically minded artists suggests a fascination with "the transformation of their immediate environment" [36]. In Kubisch's work, wandering facilitates a temporary transformation of public space as participants slowly and deliberately promenade through neighborhoods wearing their oversized headsets. In this practice of ecological art, "the artist sets up some parameters, starts the process, and watches what happens" [37]. You can watch what happens too in the video documentation of *Electrical Walks*. Attendees become the composers of their own unique gremlin symphonies by moving through the urban environment, listening intently and adjusting their relationships with the things that surround them.

Audience Participation

For me, the most exciting moment in Kubisch's documentation shows two participants discovering their ability to affect and appreciate the electromagnetic sounds of their environment by playing their cell phones like musical instruments [38]. They seem to "call up" gremlins by raising their phones into the air like a conductor's baton. After my sustained inquiry into the use of gremlins as aesthetic devices, I have concluded that *this* is the gremlins' favorite way to participate in the creation of art. They like to be summoned from the

Fig. 4. Phillip Stearns figures out how to integrate Snuff into his artistic practice. (Photo © Jan Mun/Harvestworks)

aether by collaborative groups of listener-producers willing to playfully interact with their media ecology and sonic environments. Pauline Oliveros, who advocates acoustic improvisation through her Deep Listening practices, text scores and sonic meditation, reminds us that collaborations are important because they are "a community of effort—preferably an equality of effort. Listening to one another in mutual respect is central" [39]. In keeping with this spirit, I wish to add one more contribution to this brief survey of gremlin-related artwork: my own improvisation score for a community of humans and gremlins.

Call Up the Ghost of the Telegraph

Perform this [40] in an environment able to make electromagnetic activity audible to human ears. This can be accomplished by arranging devices (Detektor or Snuff), induction coils, poorly shielded cables or any other gremlin-transducing *things* around a space. This piece requires no clear beginning or end. Here are the instructions for all audience-participants in attendance (every*one* and every*thing* is considered a performer):

When you get bored: play with your communications device; interact with your media ecology in some manner.

When you hear something interesting: stop playing with your device; and listen to your media environment.

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38. Christina Kubisch [35], at about 8:40–8:55.

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