

# The Timbre of Trash: Anthropomorphic Strategies to Resist Technological Obsolescence

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## Abstract

Like other manufactured goods, technological audio devices originate from global production systems that are historically exploitative, environmentally unsustainable, and are beholden to the expectations of continuous technological improvement and obsolescence. Unlike musicians who perform on a finite number of cherished instruments that are used for decades, electronic musicians' tools are very often subject to the whims and relentless change associated with technologically-driven economic forces. Computer musicians especially, must consistently adapt to and purchase new software and hardware to avoid losing critical functionality and compatibility. The electronic musician's position in this process opens questions of principle, regarding the ethical defensibility of self-expressive acts relative to the net negative effects caused by their contribution to technological production methods that promote suffering and global destruction.

In response to this dilemma I offer a view toward technological objects that sees these technologies as individual sites within larger systems of activity, and encourages the application of a limited sense of anthropomorphic identification with these devices. Seen in this way, sound technology that was once subject to the whims of constant development, becomes imbued with a personal sense of vitality, making it more difficult to be perceived as a disposable and obsolete.

## Keywords

Obsolescence, audio technology, performance, anthropomorphism, materialism, consumption.

## Introduction

The position of the digital artist or musician within the context of the consumption of technological commodities offers up some important challenges. To utilize technical devices for expressive ends is also to contribute to the cycle of production and obsolescence involved with global capitalism. A serious consideration of the position of the digital artist within this framework necessitates an ethical examination of the merit of the work produced in relation to the overall waste and exploitation that the connection to technological commodification entails. At first glance, there seems to be little ethical space for the creative technological act. When confronted by the scope of the

power structures involved, reactions range from ceding to the futility of the expressive effort and simply cease producing work, or to be overwhelmed by the enormity of the ethical task, and cast aside responsibility as being beyond reach. How does an electronic musician or digital artist acknowledge the results of their expressive efforts in relation to the actions of the beings who sacrificed to create the tools of the trade in a meaningful way? How does one begin to come to terms with the process of technological obsolescence that compels endless consumption and production?

The embrace of an anthropomorphic view of creative technologies can facilitate a more personal connection with the devices used, and can push against the overwhelming aspects of facing up to the totality of late capitalist modes of production. This humanized understanding of technological devices can also be instrumental in providing a view of technology that can meet objects on their own terms while resisting the tendency to consider older objects as inherently obsolete and disposable. The following is an account of how this perspective may be applied to expressive uses of audio technology.

The main aspects of this approach cover two general areas: systemic context and anthropomorphic projection. Systemic context relates to an understanding of the technological that takes into account the socioeconomic functions and environment from which the objects originated and for which they were designed. Anthropomorphic projection describes the conveyance of a personal sense of human connection and responsibility that can result in viewing electronic objects as bearing the traces of the bodies that contributed to their manufacture.

## Systemic Context

Electronic devices do not originate from the ether. They are the products of physical, economic and social systems that have history and meaning. To receive a more complete understanding of electronic audio devices, it is important to encourage an extended appreciation of their connection to the structural apparatuses that affect what commodities become produced and absorbed by global capitalism. In other words, to consider audio devices as being the products of and actants within large-scale systems that include capitalism, ecology, political movements, etc. In this sense, objects are intrinsically interlinked within a vast array of mutually co-creative actions and things.

In a setting such as this, the agency of audio technological devices does not discontinue after they have been deemed in the large as non-functional or obsolete for their original purpose. Even though their exchange or use value may become rejected by their manufacturers in favor of a newer product, it does not follow that this value cannot be adapted to other ends.

This applies not only to their operation, but to their meaning as well. As products of a specific moment in time within the mechanism of global capital, they reflect in their physicality the actions and intents of the humans and machines that affected their creation. These aspects include aesthetic design, material choices, operation, advertising, etc. They mirror the view of an intended customer base, a culture for whom the intended audio produced would be relevant, and a hierarchy of values of the product designers as well.

### Case Study: The Zoom 505 Pedal

To ground this extended connection of objects to systems, I will focus on a specific piece of equipment that I incorporate into my own practice, the Zoom 505 guitar multieffects processor pedal (figure 1). Produced in 1995 for a mass-consumer market, the 505 was designed to deliver a multitude of simultaneous audio effects that emulated more expensive professional equipment.



Figure 1. The Zoom 505 Compact Guitar multi effects processor, ca. 1995. Photo by author.

I bought my particular unit at a garage sale in 2010. At this time, I was beginning to explore the wider possibilities of low-quality, broken and obsolete audio products in

feedback, and the Zoom 505 met at least two of those criteria. When placed within the feedback milieu, I found it able to create an exceptional variety of sounds from delicate, almost tonal repetitions to deep, low frequency growls. The sounds that the 505 emitted in this context were wholly of a different world than those with which it was normatively associated. Although it is now a staple of my live performance arrangement, I would have never considered purchasing the device for its intended purpose. This was largely due to the design qualities and reputation of the company that manufactured it, which was widely associated with inexpensive hand-held recorders and low-end amateur guitar processors. An examination of the Zoom corporation's advertising tactics will provide more context for the company's cultural and economic positioning, as well as the role that audio devices like these play in the wider world of technological audio commodities.

The guitar processing industry, although much smaller than that of tech giants like Apple, is still a formidable economic entity with over \$300,000,000 per year in profits (Block, 2011). Akin to other digital technology producers, signal processing companies like Zoom rely on vanity and connection to celebrity to create demand and drive sales. Specifically, Zoom has a history of using celebrity endorsements by popular rock guitarists whom the company believe their audiences wish to emulate. By placing these musicians in advertisements with their products, the persona associated with each musician is presumably extended to the product (figure 2).

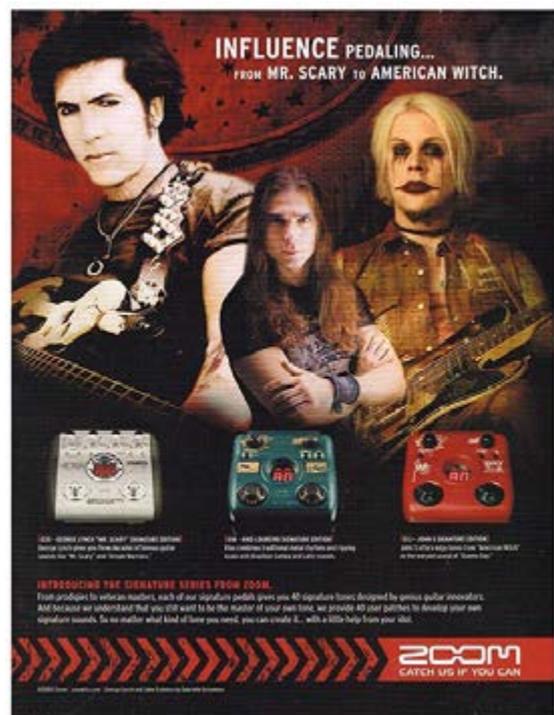


Figure 2: Advertisement for Zoom Signature guitar pedals. ©2008 Zoom Corporation.

Much of the Zoom corporation's output is solidly aimed at a young amateur market, creating items that were portable and inexpensive but provided the illusion of larger amplifiers. The tagline for the Zoom 505IICG touts the device as being "your first purchase after your guitar (Zoom Corporation, n.d.)." The focus on image and celebrity over audio fidelity is consistent with a youth market, as inexperienced players tend toward prioritizing affordability and may lack the knowledge or interest in reading the technical details of the items purchased. The fact that the same DSP chips were used on many subsequent models speaks to the expectation of these units to be used for a short period of time and then disposed of when the purchaser's interest in music waned. The focus on the image of these products rather than their functionality becomes a necessary mechanism to deliver essentially the same product to new audiences. For products like the Zoom 505 pedal, the necessity for constant influx of capital requires the promotion of a constant consumption of commodities, regardless of necessity or quality. This focus on style over substance conforms to what author Giles Slade describes as 'psychological obsolescence.' Recalling decades of previous authors on the subject, Slade portrays the necessity of obsolescence to capitalist production as one that remains a constant presence in all major markets. To drive home how entangled this process is with modern economic history, he points to a quote from Justus George Frederick, an advertising mogul from the 1920s. Frederick depicted this dominance of obsolescence as a sort of god that required constant sacrifice to allow the very existence of capital:

"Wear alone ...[is] too slow for the needs of American Industry. And so the high priest of business elected a new god to take its place along with—or even before—the other household gods. Obsolescence was made supreme (Slade, 2006)."

### **Anthropomorphic Projection**

The sacrifice required by obsolescence involves not only material commodities, but includes human and nonhuman bodies within the continual rite. It concerns the very human physical manifestations of larger systemic operations that become embedded within the materiality of the audio devices themselves. These include the record left behind by those whose labor and bodies came to produce and assemble the components and cases of the devices. To read audio commodities in this manner is to see them as palimpsests, as collective imprints of the material and human actions that went into their creation. In this way, the obsolete becomes the archival, a record of material and

human interaction that emerges as a consequent byproduct of technological manufacture.

Identifying the specific properties and entangled histories involved in the manufacture of technological devices can be a monumentally difficult, if not impossible task to reckon with fully, however. Companies like the Zoom Corporation utilize a method of outsourcing the production and assembly of component parts to exterior companies, whose exchange rates and lax labor laws made manufacturing less costly (Iijima, n.d.). Although this process, known broadly as "electronics manufacturing services," is the dominant method of electronics production, precious little information about the companies serviced, or the environmental and labor conditions involved in the manufacturing process is publicly available. This is likely the product of the desire to keep competitive information and public relations concerns within the domain of trade secrets. In addition, the EMS process often spans numerous subcontractors and factories, making the creation of a complete account its effects an incredibly complex and financially unprofitable exercise to fully and accurately engage with. Aggregate data valuation services do exist, but they tend to be focused on single component manufacturers rather than larger retail producers. Because of this, it became evident that in order to make a positive connection between my own Zoom 505 unit and its potential effect on the wider physical world, it was necessary to open up the device, and personally investigate the provenance of its individual components.

### **Zoom 505: Identifying Components**

Opening the 505 guitar multieffects unit revealed a number of components that warranted investigation. Many, however lacked sufficient markings to enable the proper identification of the manufacturer, or sufficient available information about the manufacturer to determine the circumstance of their making. Of the hundreds of components in the 505 unit, only two IC chips had both identifiable markings and available records sufficient to get a picture of the wider scope of their effects. The first is a semiconductor memory chip that the device uses to store custom presets made by the user. The IC in question is the Winbond W24L257AJ-15 chip (figure 3), made by the Winbond Electronics Corporation in its Memory Product Foundry located in Taichung Taiwan.



Figure 3: Winbond memory chip. Photo by author.

The foundry is situated within a huge manufacturing zone known as the Hsinchu Science Park, where Winbond and many other companies continue production to the present day. The Science Park has a long history of pollution and lax safety standards. A 2005 study found that soil samples taken in the area contained extremely high levels of volatile organic compounds used in electronics component manufacturing (Wang, et al, 2012). Hsinchu Science Park employees also showed decreased levels of pulmonary functions and increased lung abnormalities (Yoshida, 2001), especially in the photolithographic areas that use the toxic cleaning chemicals. These effects extend to local residential areas as well, as many of those living nearby the Hsinchu Science Park show high levels of toxicity in their blood and urine from decades of ground water contamination (Chang, et al, 2001).

The push towards secrecy in terms of environmental problems is common among electronic component manufacturers, but even with this protection, Winbond still earned an independent rating in the 28th percentile for environmental issues in relation to other firms, industry-wide ("CSRhub.com", 2016).

The legacy of the Winbond chip points to the immensity of the scope of information relating to the traces left behind by this particular component. The operation of the memory chip ironically is devoid of a sense of memory in regards to its own production. The little facts we do know point to a continuation of some of the same polluting effects present in the earliest days of the 'Silicon Revolution.' An industry that was touted as being 'clean' in relation to the smokestacks of other modes of manufacturing, instead directed its waste into the ground, where its effects were less detectable until much later (Pellow and Park, 2002).

### Connecting Components with Human Lives

A more direct connection between the unit and specific personal effects can be seen in the PCM 3003 analog to digital converter manufactured by the Burr-Brown Corporation (figure 4). This chip handles the conversion of

the electrical impulses that enter the unit into digital information and vice versa. This component was produced in Burr-Brown's manufacturing facilities in south Tucson, Arizona. This area has been a concentrated electronics manufacturing center for over 70 years, housing Hughes Air Force Missile Plant No. 44 and other military facilities. The area has contemporaneously been home to a residential population of predominantly Latinx and Native American communities.



Figure 4: Burr-Brown A/D converter chip. Photo by author.

Since the founding of the Hughes plant in the 1940s, the toxic waste from the plants was dumped into unlined industrial pits, which over time leached into the groundwater table, poisoning the city's aquifers with trichloroethylene (TCE) used to clean silicone chips. The contamination affected the local population of over 600,000 residents and contaminated the water in the workplaces of Hughes Aircraft and the Tucson International Airport Authority ("TCE Contamination", n.d.). In 1985, the toxic plume of trichloroethylene from Burr-Brown's factories had been verified as extending far beyond what was previously publicly known. The toxicity spread across an area over five miles long and two miles wide, prompting the EPA to close contaminated wells and declare much of the area a superfund site. At the center of the cloud formation, TCE levels were measured at 20 times the EPA maximum (Ostertag, 1991).

In the eye of the toxic contamination lived Rose Marie Augustine and her family. After being informed of the EPA's findings, she connected the heightened carcinogen levels with elevated rates of cancer and rare disease within her community. Her own family was impacted, with cancer affecting her husband, and her son contracting a rare muscular condition. Both of her family members' conditions she attributed to years of exposure to toxic drinking and bathing water.

After reaching out with community members to local officials for answers they were rebuffed, being called 'hysterical Hispanic housewives' by one official and another telling them that "the people on the south side were obese, lazy, and had poor eating habits, that it was our lifestyle and not the TC [toxic chemicals] in the water that caused our health problems (Cox and Pezzullo, 2009)." The group came to conclude that local officials

knew about the contamination, but did not inform the population about the toxicity problem, for fear the negative publicity would dissuade future businesses from locating in South Tucson.

In response, Augustine organized the Tucsonans for a Clean Environment (TCE) to force local government and manufacturers to make changes to protect the local citizens. By 1991, the group was able to get Burr-Brown to agree to divert its chemical dumping away from the water supply, and Hughes to install a 33-million-dollar air stripper. BurrBrown was sold to Texas Instruments in 2000, but the legacy of semiconductor manufacture endures. After more than 30 years, the group that Augustine founded remains as persistent as the groundwater contamination that still plagues the South Tucson community: in 2017, they engaged in new conflicts over recently discovered 1,4 dioxane contaminants in the water table.

### **The Technological as Collective Palimpsest**

This leaves us with a striking case in which the materiality of a specific component of audio technology had devastating effects on the material and bodies of a wide region. The same TCEs that bound with and changed the Burr-Brown A/D converter to enable its function, also became bound to the bodies of the human beings in the town of South Tucson.

To take these material connections seriously it becomes impossible to separate the physicality of the sonic technological object from its history which, when used by sound producers, includes their own bodies as part of this history. The 'radical permeability' of the technological object as palimpsest, binds audio practitioners up with the ethical and epistemological properties of their tools. The act of engaging with these objects is to bring the discomfiting collected history and effects of its physical components into the mix, in a sort of unequal but collective effort. An action of performance involving the 505 processor then, must also include the actions of the factory workers in South Tucson, and the effects acted upon them by the manufacture of its components, binding their humanity up with the material agency of the PCM 3003.

The perspective of collaborative action brings along with it the associated effects of embedded power relations as well. Can one label a performance seen in this light as collaborative, when the embedded humanity implied by the object cannot signal its consent? Merely considering the prospect can point to a range of reactions from abandoning technological practices on one end, to powerless capitulation on the other. Despite these challenges, I propose that the consideration is worth the risk.

In anthropomorphically considering the technological object as a subjective other, we may begin to approach the task of enfolding the historical subjectivity of the objective world into our own. In allowing the consideration of the electronic components within my own audio devices, I

must reckon with the ugly timelines of human-imposed contamination and exploitation that are present within these objects. At the same time, however, I also am obliged to take into account the traces of persons like Rose Marie Augustine, whose actions of resistance are also a component in the shared physical history of the devices at hand. The anthropomorphic projection of the 'fingerprints' of a perceived human agent within the understanding of these crossings can serve to render the task of confronting larger sociopolitical systems more personal and achievable.

### **Conclusion**

The case study outlined above illustrate one example of rather extreme measures taken to create anthropomorphic human connections with the physical nature of audio technology. While it is currently possible for the conscientious creative to inspect and investigate the components in their devices, it is clearly beyond reasonable expectation to prevail upon every audio practitioner to follow suit. The apparent hardship in doing so points out a crucial lack of information concerning the environmental and humanitarian impact that audio technologies have on the ecology and the laborers involved in their production. It seems clear from this examination that such a database or public informational storehouse should exist in order to inform creative practitioners' decisions on the objects they choose to interact with. Until then, a collective attention to the physical imprints and legacy of the devices used by artists can aid in presented the type of concerted effort that may affect the actions of larger system actors to provide such information and cede to the ethical demands of those who purchase their wares. Regardless of the ease in acquiring specific information, the general perception of manufactured objects as having aspects of individual humanity intermingled with their physicality can help to render an ethical value onto them that can transcend notions of use value and obsolescence. In technological audio objects, the projection of anthropomorphic qualities can have direct effects not only on the choice of objects, but of artistic strategy and sound production as well. In my case, the consideration of contextual and projected perspectives led to the embrace of the potential of a shared agency with antiquated and broken audio devices by means of audio feedback. When devices like the Zoom 505 become manifest in the realm of audio feedback, they become a force to be reckoned with - producing often chaotic soundscapes that have as much to do with the contextual aspects imprinted in the objects as they do with my own intentions. The quality of the sounds produced however, have nothing to do with any presumed functional standard or intent of their production. In this context, obsolescence is effectively erased.

Of course, these interactions are not limited to feedback, but the focus on audition and co-creation of new sound is reliant on a sense of openness in relation to the value of audio technical objects. This openness and strategic

anthropomorphism affords a sense of playfulness, that can allow the imprinted human and systemic traces of audio objects to 'speak' in their own voice. Often these voices can produce effects that would never have been attempted with a more traditional utilitarian viewpoint. The results can be exhilarating and surprising. The activity is one that is enabled by and productive of a sense of enchantment toward the devices that belies any sense of obsolescence, providing space for moments of creative serendipity intrinsically intertwined with ethics.

I contend that this type of stock-taking is especially necessary for musical and artistic practitioners. By recognizing the human trace within the technologically obsolete, we can come to terms not only with a sense of value in what would otherwise be considered garbage, but in recognizing the garbage as being in some way partly human. With this carefully limited sense of self-interest, we can hope to develop a capacity for empathy that encompasses physical objects as our own, and in that way impact on our shared sense of ethics and actions. In such a frame of mind, it becomes difficult if not impossible to consider any being, human or non-human, as obsolete. To do so would render oneself without value as well.

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