

Acousmatic Surveillance and Big Data

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Blog post published October 20, 2014 in *Sounding Out!*

<https://doi.org/10.59350/rzrej-hyw48>

Abstract

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Keywords

Music (Subfield), Acoustics, Cultural Studies, Digital Media, Information, Internets



Recommended citation

rmjames. (2014, October 20). Acousmatic Surveillance and Big Data. *Sounding Out!*. <https://doi.org/10.59350/rzrej-hyw48>

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It's an all too familiar movie trope. A bug hidden in a flower jar. A figure in shadows crouched listening at a door. The tape recording that no one knew existed, revealed at the most decisive of moments. Even the abrupt disconnection of a phone call manages to arouse the suspicion that we are never as alone as we may think. And although surveillance derives its meaning the latin "*vigilare*" (to watch) and French "*sur-*" (over), its deep connotations of listening have all but obliterated that distinction.

Moving on from cybernetic games to modes of surveillance that work through composition and patterns. Here, Robin James challenges us to consider the unfamiliar resonances produced by our IP addresses, search histories, credit trails, and Facebook posts. How does the NSA transform our data footprints into the sweet, sweet, music of surveillance? Shhhhhhhh! Let's listen in. . . -AT

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Kate Crawford has argued that there's a "big metaphor gap in how we describe algorithmic filtering." Specifically, its "emergent qualities" are particularly difficult to capture. This process, algorithmic dataveillance, finds and tracks dynamic patterns of relationships amongst otherwise unrelated material. I think that acoustics can fill the metaphor gap Crawford identifies. Because of its focus on identifying emergent patterns within a structure of data, rather than its cause or source, algorithmic dataveillance isn't panoptic, but *acousmatic*. Algorithmic dataveillance is acousmatic because it does not observe identifiable subjects, but ambient data environments, and it "listens" for harmonics to emerge as variously-combined data points fall into and out of phase/statistical correlation.

<https://vimeo.com/68554967>

Dataveillance defines the form of surveillance that saturates our consumer information society. As [this promotional Intel video explains](#), big data transcends the limits of human perception and cognition – it sees connections we cannot. And, as is the case with all superpowers, this is both a blessing and a curse. Although I appreciate emails from my local supermarket that remind me when my favorite bottle of wine is on sale, data profiling can have much more drastic and far-reaching effects. As Frank Pasquale [has argued](#), big data can determine access to important resources like jobs and housing, often in ways that reinforce and deepen social inequities. Dataveillance is an increasingly prominent and powerful tool that determines many of our social relationships.

The term dataveillance was coined in 1988 by Roger Clarke, and refers to “the systematic use of personal data systems in the investigation or monitoring of the actions or communications of one or more persons.” In this context, the person is the object of surveillance and data is the medium through which that surveillance occurs. Writing 20 years later, [Michael Zimmer identifies a phase-shift in dataveillance](#) that coincides with the increased popularity and dominance of “user-generated and user-driven Web technologies” (2008). These technologies, found today in big social media, “represent a new and powerful ‘infrastructure of dataveillance,’ which brings about a new kind of panoptic gaze of both users’ online and even their offline activities” ([Zimmer 2007](#)). Metadataveillance and algorithmic filtering, however, are not variations on panopticism, but practices modeled—both historically/technologically and metaphorically—on acoustics.

In 2013, Edward Snowden’s infamous leaks revealed the nuts and bolts of the National Security Administration’s massive dataveillance program. They were collecting data records that, according to the [Washington Post](#), included “e-mails, attachments, address books, calendars, files stored in the cloud, text or audio or video chats and ‘metadata’ that identify the locations, devices used and other information about a target.” The most enduringly controversial aspect of NSA dataveillance programs has been the bulk collection of Americans’ data and metadata—in other words, the “big data”-veillance programs.



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Instead of intercepting only the communications of known suspects, this big dataveillance collects everything from everyone and mines that data for patterns of suspicious behavior; patterns that are consistent with what algorithms have identified as, say, “terrorism.” As Cory Doctorow writes in [BoingBoing](#), “Since the start of the Snowden story in 2013, the NSA has stressed that while it may

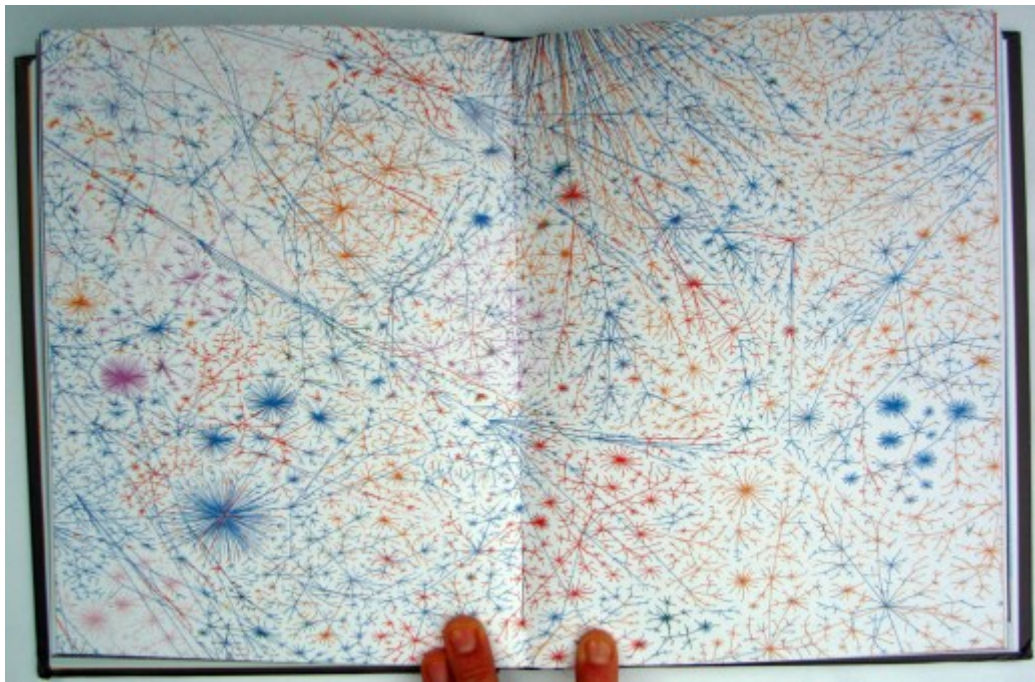
intercept nearly every Internet user's communications, it only 'targets' a small fraction of those, whose traffic patterns reveal some basis for suspicion." "Suspicion," here, is an emergent property of the dataset, a pattern or signal that becomes legible when you filter communication (meta)data through algorithms designed to hear that signal amidst all the noise.

Hearing a signal from amidst the noise, however, is not sufficient to consider surveillance acousmatic. "Panoptic" modes of listening and hearing, though epitomized by the universal and internalized gaze of the guards in the tower, might also be understood as the universal and internalized ear of the confessor. This is the ear that, for example, listens for conformity between bodily and vocal gender presentation. It is also the ear of [audio scrobbling](#), which, as Calum Marsh has argued, is a confessional, panoptic music listening practice.

Therefore, when [President Obama](#) argued that "nobody is listening to your telephone calls," he was correct. But only insofar as nobody (human or AI) is "listening" in the panoptic sense. The NSA does not listen for the "confessions" of already-identified subjects. For example, this [court order to Verizon](#) doesn't demand recordings of the audio content of the calls, just the metadata. Again, the [Washington Post](#) explains:

The data doesn't include the speech in a phone call or words in an email, but includes almost everything else, including the model of the phone and the "to" and "from" lines in emails. By tracing metadata, investigators can pinpoint a suspect's location to specific floors of buildings. They can electronically map a person's contacts, and their contacts' contacts.

NSA dataveillance listens acousmatically because it hears the patterns of relationships that emerge from various combinations of data—e.g., which people talk and/or meet where and with what regularity. *Instead of listening to identifiable subjects*, the NSA identifies and tracks emergent properties that are statistically similar to already-identified patterns of "suspicious" behavior. Legally, the NSA is not required to identify a specific subject to surveil; instead they listen for patterns in the ambience. This type of observation is "[acousmatic](#)" in the sound studies sense because the sounds/patterns don't come from one identifiable cause; they are the emergent properties of an aggregate.



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Acousmatic listening is a particularly appropriate metaphor for NSA-style dataveillance because the emergent properties (or patterns) of metadata are comparable to harmonics or partials of sound, the resonant frequencies that emerge from a specific combination of primary tones and overtones. If data is like a sound's primary tone, metadata is its overtones. When two or more tones sound simultaneously, harmonics emerge when overtones vibrate with and against one another. In Western music theory, something sounds dissonant and/or out of tune when the harmonics don't vibrate synchronously or proportionally. Similarly, tones that are perfectly in tune sometimes create a consonant harmonic. The NSA is listening for harmonics. They seek metadata that statistically correlates to a pattern (such as "terrorism"), or is suspiciously out of correlation with a pattern (such as US "citizenship"). Instead of listening to identifiable sources of data, the NSA listens for correlations among data.

Both panopticism and acousmaticism are technologies that incite behavior and compel people to act in certain ways. However, they both use different methods, which, in turn, incite different behavioral outcomes. Panopticism maximizes efficiency and productivity by compelling conformity to a standard or norm. According to [Michel Foucault](#), the outcome of panoptic surveillance is a society where everyone synchs to an "obligatory rhythm imposed from the outside" (151-2), such as the rhythmic divisions of the clock (150). In other words, panopticism transforms people into interchangeable cogs in an industrial machine. Methodologically, panopticism demands self-monitoring. Foucault emphasizes that panopticism functions most efficiently when the gaze is internalized, when one "assumes responsibility for the constraints of power" and "makes them play...upon himself" (202). Panopticism requires individuals to synchronize themselves with established compulsory patterns.

Acousmaticism, on the other hand, aims for dynamic attunement between subjects and institutions, an attunement that is monitored and maintained by a third party (in this example, the algorithm). For example, Facebook's News Feed algorithm facilitates the mutual adaptation of norms to subjects and subjects to norms. Facebook doesn't care *what* you like; instead it seeks to transform your online behavior into a form of efficient digital labor. In order to do this, Facebook must adjust, in part, to you. Methodologically, this dynamic attunement is not a practice of internalization, but unlike Foucault's panopticon, big dataveillance leverages outsourcing and distribution. There is so much data that no one individual—indeed, no one computer—can process it efficiently and intelligibly. The work of dataveillance is distributed across populations, networks, and institutions, and the surveilled “subject” emerges from that work (for example, Rob Horning's concept of the “[data self](#)”). Acousmaticism tunes into the rhythmic patterns that synch up with and amplify its cycles of social, political, and economic reproduction.



Sonic Boom! Borrowed from NASA's Goddard Space Flight Center @Flickr CC BY.

Unlike panopticism, which uses disciplinary techniques to *eliminate* noise, acousmaticism uses biopolitical techniques to allow profitable signals to *emerge* as clearly and frictionlessly as possible amid all the noise (for more on the relation between sound and biopolitics, [see my previous SO! essay](#)). Acousmaticism and panopticism are analytically discrete, yet applied in concert. For example, certain tiers of the [North Carolina state employee's health plan](#) require so-called “obese” and tobacco-using members to commit to weight-loss and smoking-cessation programs. If these members are to remain eligible for their selected level of coverage, they must track and report their program-related activities (such as exercise). People who exhibit patterns of behavior that are statistically risky and unprofitable for the insurance company are subject to

extra layers of surveillance and discipline. Here, acousmatic techniques regulate the distribution and intensity of panoptic surveillance. To use Nathan Jurgenson's turn of phrase, acousmaticism determines "for whom" the panoptic gaze matters. To be clear, acousmaticism does not replace panopticism; my claim is more modest. Acousmaticism is an accurate and productive metaphor for theorizing both the aims and methods of big dataveillance, which is, itself, one instrument in today's broader surveillance ensemble.

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Featured image "Big Brother 13/365" by Dennis Skley CC BY-ND.

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Robin James is Associate Professor of Philosophy at UNC Charlotte. She is author of two books: *Resilience & Melancholy: pop music, feminism, and neoliberalism* will be published by Zer0 books this fall, and *The Conjectural Body: gender, race and the philosophy of music* was published by Lexington Books in 2010. Her work on feminism, race, contemporary continental philosophy, pop music, and sound studies has appeared in *The New Inquiry*, *Hypatia*, *differences*, *Contemporary Aesthetics*, and the *Journal of Popular Music Studies*. She is also a digital sound artist and musician. She blogs at its-her-factory.com and is a regular contributor to *Cyborgology*.

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