

# Anti-Noise, Improvisational Informatics, and World Generation

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Computation, like notated music and language, is ultimately concerned with event sequences. Bits and music notation share the additional quality of abstraction from meaning—that is, because they don't signify in the same ways as language, they have fewer syntactical constraints imposed upon their mutation through recombinant approaches. A human observer might assign meaning to certain musical sequences a posteriori, like a leitmotif, but the individual note as represented on a page is the equivalent of an abstract datapoint. It may describe a sonic event of any kind, depending on how it is contextualized. In music and data, we can make permutations of abstract sequences and more readily accept the results as aesthetically interesting or valid than is possible with text and natural language processing. In both music and media art, then, our aesthetic computation can be considered more freely 'improvisational' than it otherwise might be. The process of re-conceptualizing a musical phrase *as* a data sequence or a series of voltage differences (e.g. in music sequencers and notation software), and the reverse, conceptualizing data as music, (as in data sonification), show how archival practices in the context of the epistemology of Western music lent itself to representations in "bits" long before the advent of computation: either the note is playing, or it is not. There might be other parameters or notation we use to generate pitch, difference, variation, interest and novelty once the note actually plays, but the basic opposition at play in our conception of music, especially after Cage, is the event, or its absence (silence).

In the works of Iannis Xenakis, musicologist Christopher Haworth finds an origin point for a contemporary phenomenon where structural complexity finds aesthetic commonality with its apparent absence; the affective space where data-based, institutional approaches to 'avant-garde' computer music begin to resemble counter-cultural, DIY and yet thoroughly technical music such as noise. Haworth uses the term "anti-noise" to refer to the complexification of institutional 'computer noise' to the point of its seeming irrationality and aesthetic resemblance to its would-be opposite: the punk-influenced lineages of "noise proper". As a noise artist, computer musician and software developer, I find the analytic of anti-noise useful across a broad array of knowledge phenomena, both within and outside the disciplinary confines of computer music and audio synthesis.

To show how the concept of anti-noise describes the advancement of a sociotechnical system's knowledge frontier through stochastic, generative, and yet always *determinate* event prediction techniques, this talk will position noise and pseudorandom processes as modes of both generativity and discovery, through the discussion of two technical objects created by the author. The first of these comes from my practice as an experimental musician and noise artist. Through an explication and demonstration of my own compositional techniques, and discussion of the larger sociotechnical assemblages they rely on (including pseudorandomness, body tracking and machine learning), I will comment on the ways that machine systems complicate the notion of human decision in real-time and improvisational contexts. In our attempts to remove or reduce the impact of individual subjectivity in our works (expressed in the anxiety that our improvisational decisions are insufficient because of our incomplete knowledge of the world), I argue that our recourse to anti-noise techniques of prediction and generation substitute for a naturalized universal that previously found its expression in the sublime. In postmodern aesthetics,

logistics, epistemology and politics, I argue, we seek to evade the limitations of personal subjectivity through the transcendent possibility of true noise.

The second example comes from a collaboration with the renowned media artist and theorist Bill Seaman on the World Generator 2.0, a system for experiencing dynamically-generated virtual environments and for visualizing and sonifying connections between scholarly articles, using Perlin noise, “gravity” and other concepts from game-based physics and terrain generation as a mode of demonstrating the textual relationships that exist between the individual written works that comprise a scholarly corpus. The system populates an environment using pseudo-random and generative techniques to select pre-designed 3D models, sound, video, digital photographs, text fragments and other digital information processes, motions and behaviors from a database. The generative relational techniques draw inspiration from those used (at a much larger scale) in the 2016 video game *No Man’s Sky*, which is “built around a procedurally generated deterministic open universe that contains a staggering 18.4 quintillion planets,” and whose terrain and artificial life generation techniques construct a virtual universe so varied and vast that the developers admit: “The universe is essentially as unknown to the people who made it as it is to the people who play in it.” The game’s effective implementation of L-systems, fractal equations and the Superformula algorithm led entrepreneur Elon Musk to ask the game’s developers their views on “the chances we’re living in a simulation”.

Through these examples in outsider and avant-garde musical practice, terrain generation in virtual worlds, and the operations of text-based “similarity” or “recommendation” engines, I suggest that idealized, naturalized “noise,” a phenomenon which we simulate through processual anti-noise, but can never know whether truly exists (for to know would also be to discover for certain whether ‘reality’ is determinate). In spite—or perhaps *because*—of our inability to know the true ‘nature’ of noise, it’s pseudorandom substitute serves a wide variety of roles in computational culture: it is a paradigm that unites standards for both aesthetic purity and scientific objectivity, it serves as a de-facto grounds for political and governmental legitimacy. Anti-noise, I argue, appears irrational through complex (but never ‘disinterested’) rationality, and is the primary structuring operation of postmodernity.