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**NOISE AND ERROR IN  
CONTEMPORARY TECHNOCULTURE  
– AN INTERVIEW WITH PETER KRAPP**

The following article is an interview with Peter Krapp (UCI), which was conducted due to his participation as a lecturer in the 16<sup>th</sup> Week of Image. Peter Krapp is a Full Professor in the Department of Film & Media Studies at the University of California, Irvine. Prior to Irvine, Krapp taught at the University of Minnesota and at Bard College. He has also been a Visiting Professor in South Africa, Taiwan, Brazil and across the United States. His lectures and seminars cover a diversity of topics, such as secrecy, archives, computer games, digital culture, media theory and media arts. He edited and organized two books, *Medium Cool* (2002) and *The Handbook Language-Culture-Communication* (2013), and is the author of *Déjà Vu: Aberrations of Cultural Memory* (2004) and *Noise Channels: Glitch and Error in Digital Culture* (2011). In his most recent book, Krapp maps a variety of glitches, bugs and lags that swarm the aesthetics of digital culture. At the heart of this work, he re-examines information theory and the history of design to address the creative expressions related to noisy phenomena in current forms of human-computer interaction. On our questioning, we approach Krapp to discuss themes such as the ergonomic principles which play a central role in graphical user interfaces infrastructural development, the aestheticization of error in digital culture, and the unstable relationship between noise ratio and technological conditions in digital music production.

Luersen and Maschke (LM): Arguing on the importance of bearing a speculative propensity and developing experimental projects to approach new media, Benjamin Bratton states that one of the fundamental ethical-political tasks of 21<sup>st</sup>-century design is to deconstruct 20<sup>th</sup>-century design.<sup>1</sup> At certain points in your book *Noise Channels: Glitch and Error in Digital Culture* (2011), you comment on some of the jargon that defined new media prospects, such as ergonomics and immersion, to name a few,

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<sup>1</sup> Cp. Benjamin Bratton, “On Speculative Design”, *Dis Magazine*, The Time Complex: Postcontemporary Issue, 2016. Available at: <http://dismagazine.com/discussion/81971/on-speculative-design-benjamin-h-bratton/> [accessed December 13, 2017].

placing them in a broader historical context of user interface design.<sup>2</sup> In this scenario, we would like you to comment on the contemporary role of noise (if it has one), in deconstructing notions such as ergonomics and immersion. Or, on the other hand, would it be more useful for us to think of digital media as in a continuous and enduring negotiation with noisy aesthetics in the production of difference in media artifacts?

Peter Krapp (PK): You are asking a set of very complex questions – can noise deconstruct the notion of ergonomics or of immersion? My sense is that to see whether this is the case, it would not suffice to take examples in digital culture. What is needed to guide a satisfactory answer is a sense of the tension you invoke when you describe, as my friend Ben Bratton does, the task of this century as undoing the legacy of the last century. To me, any attempt to ‘deconstruct’ needs to recognize that by inverting a hierarchy, you may not undo the basic power the terms being manipulated still have over us. Yes, the task for 21<sup>st</sup> century media aesthetics certainly does involve overcoming stale interface metaphors we inherit from ages ago (the desktop, the folder, the file, the trash can, etc.), and finding our intuitive access to the full capacity of networked computing for human-scale information and entertainment and art. By the same token, this cannot undo the fundamental shift that occurred in the 20<sup>th</sup> century, when information, entertainment, art, social life, work, and education all incorporated the logic of networked computing. To bank on the creative and political potential of contingent, accidental, and noisy interactions in an ever more tightly controlled environment is not to pretend that we could turn the internet into the anarchic dream it was for H.G. Wells when he wrote about the world brain, or Paul Otlet when he presaged what Vannevar Bush summarized as the major lessons for collaborative networking in his seminal big-government science management texts.<sup>3</sup>

Creative expressions may seem noisy to the extent they do not comply with a mainstream, tamed, predictable use of the network – and yet any such sudden flashes of performative interaction are quite readily recuperated, aestheticized, and re-entered into the data flow. The seminal theoretical and technical interventions that seek to regulate the ratio of noise to signal are configured in such a way that the network reduces the

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<sup>2</sup> Cp. Peter Krapp, *Noise Channels: Glitch and Error in Digital Culture*, Minneapolis. University of Minnesota Press, 2011.

<sup>3</sup> Cp. Herbert George Wells, *World Brain*, North Stratford, Ayer Company Publishers, 1999 [1938]; Paul Otlet, *Traité de Documentation: Le livre sur le livre, théorie et pratique*, Liège, Éditions du Centre de lecture publique de la Communauté française de Belgique, 1989 [1934]; Vannevar Bush, “As We May Think”, in Nick Montfort and Noah Wardrip-Fuini (eds.), *The New Media Reader*, London: MIT Press, 2003 [1945].

probability of accidents and errors; but the fact remains that all our channels are necessarily, endemically noisy. So, I do not propose to revalorize noise as virtuous or disruptive, nor do I seek to devalue the properties and affordances of clean storage, transmission, and processing of information as inhumanly mechanical.

The fundamental question always is: whom does this activity serve? So when you ask whether it would be more useful to think of digital media as a negotiation with noisy aesthetics, I say – yes, aesthetics must reserve significant room to noise, contingency, unpredictability – precisely because if it did not, it would disappoint, it would fail to surprise, to inform, to deviate, to entertain or even to be noticeable. That is why my book argues that we must be conversant both with technology and its conditions of possibility for art, and with aesthetics and its older or newer attempts to analyze the codes and channels of our experiences.

LM: Human-computer interfaces are a *locus* where we can observe the creative expressions of contemporary technoculture. In the face of the management of possibilities offered by the ergonomic principles that take part in the interface design of so-called new media, often guided by the idea of making the computer invisible to its users, is it reasonable to think of errors and bugs as providing opportunities for creative agendas to develop in today's media ecology? In this context, what is the significance and the role of chance between the redundant interface projects that allow actions hermetically bounded by rules to a user and the indeterminacy that is supposed to be prevented in such cases?

PK: Ergonomics does not have a long history. The notion of the interface is even more recent. After the industrial revolution introduced new challenges to how humans work, move around, consume information, and share goods, the so-called “Fordist” development seemed to many observers less like humans with machines, but more humans against machines – less a collaborative environment than a sort of confrontation. Indeed, the conditions of labor changed, and the risks of accidents increased. So consultants and managers (two professions that came into their own around the time, for these very reasons) like Gilbreth<sup>4</sup> came up with ways to protect the human body against repetitive strain, and injury-prevention became a priority. Around the same time, a real challenge to the workplace was how to integrate or

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<sup>4</sup> Frank Bunker Gilbreth (1868-1924), North American engineer and consultant. Gilbreth has developed the Scientific Management model based on ideals of efficiency and rationalization of labour. He is mostly known for his defence of methods to study, measure and manage the movement of the workers' body in order to prevent fatigue.

reintegrate people who were wounded in the First World War. How do you train someone to be an effective typist, bricklayer, secretary, seamstress, factory worker, etc. and how do you integrate someone who has a wounded leg, a missing finger, a bad back? These questions led to establishing better working conditions – ergonomic seats, desks, and other working environments that reduced the probability of mistakes, accidents, and injuries, and that allowed people with war injuries to go back to work. When computing comes into the workplace, these are already active questions, and the notion of the interface (which has not changed as much as one might like to think in the past eight or so decades) derives basic principles from ergonomics, so that people are enabled to perform repetitive tasks with the degree of efficiency that spares them from fatigue or injury.

The graphic interface which effectively hides the workings of our machines from the user, and the miniaturization of devices whose many functions often reside “in the cloud” rather than in the small, portable access device we hold in our hands, have withdrawn a lot of knowledge about those machines – including the knowledge they gather about us, as we see in the case of social media...

This technocratic tale of a century of management and consulting does, however, point to the capacity of errors and bugs to give rise to creative agendas, just as you put it. In my book I try to explore some of these – machinima and other game videos, but also music, net art, media activism, and so forth. Because in a very abbreviated way one might say that the more the interface restricts our access to the storing, processing, and transmitting of information and entertainment, the more we want to get back into the human-machine loop and explore the inner workings. It is in this dialectic of convenient information-hiding versus full knowledge that I situate the discussion of contingency – and theoretical reflection on contingency has long associated it with aesthetic potential. I tried to explore to what extent a game is a space for contingency – not every theorist of art may agree that gaming is the best way to elucidate this issue, but I have found it productive. Systematic thought often shies away from contingency and emphasizes necessity, determination, rules.

But while games have rules, they also allow for, are designed for, playful interactions that occasionally challenge rules. Arguably, aesthetic experience is a traditional refuge of chance, accident, and play from their philosophical (and theological) exclusion, and this remains just as true in the age of high-tech media environments that are highly controlled and predictable.

LM: In the chapter “Noise Floor: Between Tinnitus and Raw Data”, you describe a series of events in regard of music that have altered its form, as well as the very meaning of the word “music”. Post-tonal experiments like the twelve-tone system, atonalism and integral serialism would break with a secular past of tonal music. Following them up, there were also experiments with new technologies of music production and reproduction, such as *musique concrète* and electronic music. Later, the advent of computer music with Max Mathews<sup>5</sup> and several other forms of computer-generated sound. Music today is infused with these techniques, and the line between music and noise seems to be increasingly blurred. Present-day popular bands, such as *Death Grips*, use numerous sounds that could be considered as noise, and genres such as *Noise Music* and *Power Electronics*, focused on aggressive and ‘anti-musical’ aesthetics (close to raw data, we could say), became well-established styles. The technocultural development of these techniques have broadened the conception of music, and what used to be considered noise is increasingly interwoven with music. It is often commented that meaning, the recognition of a sound, is given by its melody, by a semantics of duration, rhythm and timbre. However, it seems that today there is a potential for producing sounds that are increasingly complex, generated by intensive processing, that turn out to be hardly recognizable and do not sound like anything familiar. Music gets expanded into a space of a-significant sonority, through non-recognizable sounds, and often in open rhythmic structures difficult to follow. How does this significant impossibility affect the way music is dealt with and to what extent is technoculture tangled in this process?

PK: You are correct in pointing out that technical developments have expanded the notion of what we consider acceptable in music, and also expanded our notions of what different types of music seek to achieve. But much the same held true long before the introduction of recording, of computing, of electroacoustic experiments, etc. As I try to retrace briefly in the book, technical progress has enabled aesthetic shifts for centuries. This is not to say that techno-determinism allows us to reduce music to what is feasible at a certain moment in time, but obviously composers and musicians have long embraced the challenge to incorporate different sounds.

You raise the question about distinguishing between musical sound

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<sup>5</sup> Max Mathews (1926–2011) was an electrical engineer who pioneered in computer music. He’s better known for his achievements in developing a programming language – MUSIC – which was seminal to the late development of software as Max/MSP and Pure Data.

and noise, and in the book, I work through a number of different discursive formations. Some of these are aesthetic, or formal distinctions; others are cold rational approaches, for instance the attempt to instrumentalize information theory to distinguish between noise and signal. But even after looking at these, one has to concede that the interesting thing about music is that it can remain, and must remain, free to exploit the potential for surprise, variation, accident, improvisation, even and especially as it becomes ever more highly technical – from the performer’s skills to the instruments, and from the composer’s or arranger’s palette to the multifarious ways of distributing and listening.

A traditional distinction between musical sound and noise usually relies on intentional versus unintentional – which is hard to control if you play, for instance, a reed instrument like the oboe, or a string instrument like the violin, but there is plenty of other potential for unintentional sounds even once the technical means become ever more highly controlled and circumscribed – there can be controlled feedback in playing electric guitar, but there can also always be unintentional screeching in amplification; there can be scraping chairs, coughing in the audience, microphone issues, vocal chords that fail, etc – and perhaps some of these imperfections are actually fully part of the aesthetic experience of a beautiful concert, while the clinical excising of them in a ‘perfect’ and cleaned-up recording can leave the same listeners unmoved. And indeed sometimes the musician wants you to hear the imperfections of a bow, of a voice, of a chord, of a rhythm – it keeps things interesting, it reminds us of the human scale even among the very high-tech armatures that performers are surrounded by sometimes.

A less traditionalist distinction might point out that this very attempt to define against a horizon of expectation what in the aesthetic event is unexpected can be formalized in probabilities, in statistics. And of course that is true – although perhaps an information-theoretical approach that allows us to comprehend much about digital media history may still never comprehend the full aesthetic appeal to us humans, as we remain noisy narrow-band devices with irrational preferences for emotional rather than purely intellectual consumption of music... So yes, even as we see how efficiently technical progress can banish the unpredictable and the unintentional from our art forms, we also see that musicians, performers, composers bring these included-excluded elements back into the fold and explore their aesthetic potential. Glitch, click, feedback, etc. become elements of sonic play, their lack of meaning is inverted into a signal. This inversion and revaluation of noise is interesting, because it demonstrates that we are always dealing with a relation, with a ratio, not with two different sets of sounds.

Not every listener, and certainly not every musician, wants to couch their activity in the sometimes very abstract terms of information theory or see them from the vantage point of media history. But I think my chapter shows that there are some very interesting avenues to explore if one is willing to make these connections between aesthetic communication and its technical conditions of possibility.