

# From signal to signification in interactive environments

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## Abstract

There is no doubt that the shift to real-time interactive and electronic media can benefit from a renewed focus on the signal and a signaletic paradigm in addition to the sign. However, in this article I argue that we must be careful not to simply fall into the idea of one paradigm to simply replace the other. Rather, we should investigate what the fusion between paradigms allows us to say about digital and interactive technologies. This article attempts to do this through a thinking-together of signal and signification as well as affect and emotion based on the work of French philosopher of technology Gilbert Simondon. Through an analysis of the minimal media installation *Touched Echo*, I argue that it is necessary to account for the dynamics of a larger experiential continuum to uncover the affective-emotive relations that occur through the transindividual workings of the signal and signification in interactive environments.



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In the following article I would like to propose a re-thinking of the relation between signal and signification through a reading of French philosopher Gilbert Simondon. While there can be no doubt that a move toward a signaletic paradigm can offer important insights into the analysis and understanding of real-time interfaces, electronic media and interactive technologies in contemporary society, such a move raises as many questions as it provides possible answers. As argued throughout this volume, there is indeed a continued need to develop the notion of the signal (or signaletic) as a focal point of analysis in a move

away from the sign in a strictly linguistic sense. Starting from the signal allows us to ask questions about *how* we experience, what *makes us* experience, and what might be termed the conditions of emergence of experience, rather than—or in addition to—*what* we experience. These questions have been explored in a range of new theoretical directions within an increasingly inter-disciplinary research community, among others, but maybe most notably, under the heading of what has been termed an Affective Turn.<sup>1</sup>

One of the reasons for the emergence of this analytic trajectory stems from the fact that new

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media and interactive technologies to a palpable extent have had an impact on our basic conditions for experiencing the world. Concepts like the signal and affect direct our attention to the experiential effects of interactive and digital technologies and have long been an interest in such diverse fields as cultural and critical theory and interaction design with different motives and goals but a range of intersecting interests.<sup>2</sup> Focusing on interactive environments from an increasingly experiential point of view has led to important insights into the way new technological assemblages are modulating our lives on a micro-level with macro-implications. This has made it possible to assess the impact of the technological in terms of the lived and experiential qualities that emerge from the affective encounter between the digital and the analog. Importantly, in most of these accounts the signal pertains to both the human and the non-human, and in particular the way the human and non-human relate in new hybrid assemblages or mixed realities.

While this move has arguably led to important insights and new agendas worth pursuing for a variety of research communities we must be careful not to flush the conceptual baby out with the intellectual bathing water. Importantly, we must continue to investigate how starting from the signal or affect makes it possible to rethink the sign, signification or emotion. How, we might ask ourselves, does a move from sign to signal work its way back: from the signal or the signaletic material to the sign or signification? How would we understand, for instance, text, language and communication signaletically? How can we develop ways of relating the signaletic and the working of the signal to a nuanced understanding of what in Brian Massumi's words could be termed a full "experiential continuum"?<sup>3</sup> In this article, I will argue that it is necessary to avoid a sole focus on one concept, be it sign, signal, affect, signification or emotion, and instead attempt to broaden the analysis of how the signaletic and the affective make felt and persist through signification in what, at least in the discourse on affect and emotion, have been named more "qualified" modes of experience.<sup>4</sup>

To effectuate a conceptual path for this exploration, I propose Simondon's notions of the "signal" and "signification" as a starting point for analyzing the experiential dynamics in relation to this larger experiential continuum.<sup>5</sup> Through and with

Simondon, I outline a theoretical grounding for addressing how the signal and signification as well as affect and emotion always co-exist related through what in Simondon's philosophy is termed the preindividual. The notion of the preindividual is used to describe that which has not taken any determinate form yet but still offers potential for actions in a given situation. Through an analysis of the minimal media installation *Touched Echo* by digital artist Markus Kison I will unfold the experiential dynamics of interactive environments in ontogenetic and processual terms, focusing on the transductive and transindividual relations between signals, signification, affect, and emotion. On the basis of this I will argue that focusing on signification opens a conceptual path for exploring interactive technologies and environments in terms of the individuations and lived relations that occur through our interactions with them in experiential terms.

## AN ONTOGENETIC APPROACH TO THE RELATION BETWEEN SIGNAL, SIGNIFICATION, AFFECT AND EMOTION

The work of Gilbert Simondon has received heightened attention throughout the last decade.<sup>6</sup> There are a number of reasons for this, among others that Simondon's work has been a big source of inspiration for the philosophy of Gilles Deleuze, that Simondon has a particular vocabulary for addressing the technological and that his philosophy is a process philosophy concerned with accounting for becoming rather than being. Today, most of Simondon's work still awaits translation into English, which is somewhat a hindrance for his continued proliferation. This article does not allow for an encompassing introduction.<sup>7</sup> However, a few preliminary remarks are necessary to situate the analytic and theoretical concerns treated in the following.<sup>8</sup>

Simondon's philosophy is a theory of individual and collective individuation with a particular emphasis on the preindividual fields that make individuation possible through transduction and ontogenesis. Individuation is a perpetual process of forces negotiating their future composition and can be conceptualized as a motor of existence. Individuation describes the very process of becoming of an individual, be it biological, psychic or

technical. The process of individuation is a process of dephasing (*déphaser*) from a phaseless state of potential, that is, the preindividual.<sup>9</sup> The preindividual level of experience is the potential and not yet actualised part of each particular individuation. Simondon points out that the force that makes individuations evolve collectively and endure can be named affect. Affect or affectivity is that which “expresses a preindividual charge in a becoming and supports the collective individuation”.<sup>10</sup> The environment holds preindividual forces and various tendencies that might or might not individuate in a given situation. The preindividual level of experience is the potential and not yet actualized part of each particular individuation.<sup>11</sup>

According to Simondon individuals are continually individuating through processes of transduction. Transduction is the “mechanism” driving individuation. Importantly, a Being can never be entirely individuated; there is no predetermined goal that a being can attain in the sense of completion. The notion of an individual does not denote any fixed entity; instead, individuals are processes of ongoing individuation. As a consequence, Simondon’s overall mode of investigation is termed ontogenetic.<sup>12</sup> Different from an ontology primarily concerned with Being, ontogenesis accounts for becoming.

In his oeuvre, Simondon treats the notion of the signal as a central part of his general theory of individuation. In the following this move will be outlined and further developed to unfold the ontogenetic dynamics of the signal in relation to the notions of signification, affect and emotion.

### Toward a notion of signification

In Simondon’s philosophy, the signal pertains to the preindividual field of potentiality that might or might not develop into an actual individuation. However, he stresses the importance to conceptualize the difference between signal and signification since this difference constitutes the faithful (*fidèle*) and essential criteria to distinguish a veritable individuation from the functioning of a non-individuated sub-ensemble (*sous-ensemble non-individué*).<sup>13</sup> Signals, Simondon argues, are either spatial or temporal, whereas the individual—and signification—is both spatial and temporal.<sup>14</sup> Signification is necessary for any individuation to

occur, and the individual is the being that appears when there is signification:

According to the distinction between signals and significations, we will say that there is an individual when there is a process of real individuation, i.e. when significations appear: the individual is that by which and that in which significations appear, whereas between the individuals there are only signals.<sup>15</sup>

Simondon argues for a thinking of signification in experiential terms that do not imply a linguistic or meaning-centered stance. In fact, Simondon stresses that language is not that which permits for man to gain access to significations. Instead, significations permit for language to occur.<sup>16</sup> In a Simondonian discourse, signification does not relate to any higher level of meaning but rather to the occurrence of transindividual relations and individuations. This way, signification is not *of* a Being (*de l’être*) but *between* or rather *across* Beings (*entre/à travers les êtres*).<sup>17</sup>

The way signification works transductively is to relate different signals by functionally integrating different kinds of information in a given system. Rather than the idea of passive reception of a given content, it is necessary to form a transindividual collective with another Being. For signification to occur, signals must form some sort of relation with a system, and for this to happen, the system must be ready to receive the information—the conditions for sense-making must be right:

[...] for signals to make sense in a system they cannot bring to the system something entirely new; an ensemble of signals only makes sense (*n’est significatif que*) on a ground which almost coincides with it; if the signals cover exactly the local reality, they are no longer information, but only exterior iteration of an internal reality; if it is too different, it will no longer be seized as having sense, it will no longer make sense, since it cannot be integrated.<sup>18</sup>

As a result, signification and hence individuation does not necessarily occur when there are signals or ensembles of signals; it depends on how the signaletic ensemble resonates in the meeting with a system. Nonetheless, the signals and information are, of course, necessary for any signification to occur. Simondon relates this to the idea of a form, not as something fixed waiting to be fulfilled, but as

something that emerges dynamically with and as a result of signification:

To be received, the signals must meet *prior forms* in relation to which they are *significant*: signification is relational.<sup>19</sup>

Here, it is clear that the signal does not in itself constitute the relation. In this sense, signification cannot be understood without the signal, but the signal in itself cannot be understood as a separate realm from signification if relations are to occur.

It is important to underline that a Simondonian understanding of signification does not only relate to the human but to the non-human as well. Signification is necessary for individuations to occur in technological, biological, or psychical systems alike. Both the human and the non-human—through the transindividual distribution of signals—must produce significations that can only occur relationally through the force of affect expressing the preindividual charges collectively. Here, the in-between, the encounter is that which completes the processes of individuation—not as an end, but as a new starting point for new ontogenetic becoming.

### Affect and emotion

The unfolding of the dynamics between the signal and signification in Simondon's work is closely related to understanding the relation between affect and emotion. In the chapter, *Individuation et Affectivité* in *L'Individuation Psychique* Simondon thoroughly investigates the relation between affect and emotion as the relation between the individual and consciousness.<sup>20</sup> Simondon stresses that the psychic (le psychisme) is neither pure interiority nor pure exteriority, but a permanent differentiation and integration following a transductive regime of causality and finality. According to Simondon, affect and emotion are the primary modes of experience when describing the relation between the individual and the world framed through the notion of transduction:

Affectivity and emotivity would then be psyche's transductive form *par excellence*, intermediary between clear consciousness and the subconscious, permanent link between the individual to itself and the world, or rather a link between the relation of the

individual to itself and the link of the individual to the world.<sup>21</sup>

According to Simondon, there is no final stage concerning this processual dynamic since it is ontogenetic. In experiential terms, the preindividual always persists in the individuation, which can thus never be seen as substantial:

[...] the individuated being is not entirely individuated, but still contains a certain charge of non-individuated reality, pre-individual, that it preserves and respects [...].<sup>22</sup>

That which persists across the individuation as the relation between the preindividual and the individual is the transindividual. This is the signification of the Being as separated and assembled, alone and as part of a collective, where the individuated Being is both alone and populated at the same time.

Simondon argues, that this must be understood as a relation between affectivity and emotivity. Rather than talking about affective states, Simondon focuses on affective exchanges between the preindividual and individual as central for understanding this relation. Affectivity can be considered the foundation of emotion by taking the charge of the preindividual nature and making it into a support for the collective individuation. In turn, emotions are for affectivity the discovery of a superior order, of a synergy moving to a higher or more stable metastability. There is resonance between both affect and emotion. In fact, Simondon argues that emotion is integrative and "more rich" than affection (affection).<sup>23</sup>

Simondon's philosophy of individuation offers a conceptual path to unfold the processual conditions of emergence of experience, what makes us experience, through an ontogenetic understanding of the transindividual dynamics of signals and significations. In relation to interactive environments, a Simondonian approach would aim to account for these factors as they might unfold in the interactive event through affective exchanges. An interactive environment holds preindividual tendencies that might or might not individuate in a given situation through the force of affect. If the conditions are right, this might result in an event where significations arise through the interaction, something that would register on an affective level, but would also continue to modulate the experiential field emotionally. This extends the analysis

from the signaletic, or affective, to also include signification and emotions. In the following and final section, I will try to unfold this conceptual trajectory more closely through an analysis of the interactive installation *Touched Echo*.

## TOUCHED ECHO

*Touched Echo* by German digital artist Markus Kison is a minimal media installation in the city of Dresden, Germany.<sup>24</sup> The installation takes the visitors to Bruhl's Terrace back to the night of the 13th of February 1945. On that night Dresden's Old Town was almost entirely destroyed by the allies' air raid in an attack that killed more than 24,000 people. There is a railing on the terrace, which has been equipped with custom-made sound transducers. A simple pictogram shows the date of the bombing and a person covering the ears with the hands (Figure 1).

When you walk onto the terrace and lean on the railing facing the Old Town, a soundscape is transmitted as signals from the vibrating balustrade. The sound, however, is not transmitted through the air. It is transmitted through your arm directly into your inner ear via bone conduction through the skull. The sound travels through and modulates your body as really felt signals before you are consciously able to register the content of the soundscape as explosions and aircraft sounds. This way, you do not perceive content as a passive recipient; you enter into a system with the installation that could not exist outside of the interactive event. To experience *Touched Echo*, you literally have to put yourself in a similar position to the people who covered their ears to escape the horrendous noise of the explosions 65 years ago. But by performing what would normally be a sheltering gesture—a gesture performed to

avoid and protect—you actually gain access to the soundscape.

*Touched Echo* works directly on an affective level of experience. Through your physical posturing, you prepare for the content of the soundscape to come; your body is bracing for the significations to arise in resonance with the signaletic material emitted from the balustrade. In this way, the installation stages an affective encounter where the people interacting with the system and the signals emitted from the system together form a transindividual collective that exceeds both the people and the system, the human and the non-human. What emerges is a relational field that is felt for its resonating potential that might, or might not, through the force of affect, actualize as significations through processes of individuation. These affective exchanges between the preindividual and the individual continuously modulate the formation of the experience of the installation and the space in which it is situated.

In *Touched Echo*, signification might arise on a number of experiential levels through people's interaction with the installation; there can be signification in the resonance between the signals of the system and the signals of the body; there can be signification when this registers spatio-temporally as a perceived soundscape; and there can be signification when both the pre-posturing and the reception of the soundscape enter into relation with the socio-cultural and historical framing of the setup and the city of Dresden, which could also be seen to function emotionally. Rather than perceiving this as different affective states or experiential levels, a Simondonian approach to the analysis would bring to the fore the diverse functioning of all these collective individuations. This complicates the relation between affect and emotion, which should



Figure 1. Markus Kison: Pictogram from *Touched Echo* and a person engaged in the interaction with the installation. Photo: Markus Kison.

be considered relationally in a full experiential continuum. In *Touched Echo*, the railing and the physical movement of crouching down marks an interface between the affective and the emotional, where the immediate experience activates and creates the potential for the continued experience of the installation, a new ontogenetic becoming continuously modulated by the affective encounter. In this way the emotional always has an affective remainder, which continues to function and inter-mix with more qualified modes of experience over time.

*Touched Echo* works transductively to capacitate the public space in which it is situated in a way that can only be actualized through people's participation with the installation. The socio-cultural and narrative framing of the situation and the person's lived history is folded into and modulates the affective experience of interacting with the installation, which in turn uses the technology to activate and make these stories felt differently through a particular performative staging. The people who lean on the balustrade are forced into the role of a performer. By crouching down you perform the gestures of the Dresden inhabitants of 1945 by literally putting yourself in the same (physical) position as them. Through your performance, the past, already a part of the historical feel of the place, enters the present. You travel back in time to the night of the bombings and simultaneously time travels back through you; by crouching down, you yourself become a living memorial of the event. The night of the bombing is re-activated or re-enacted through the physical posture demanded by the installation, influencing the atmosphere of the place.

*Touched Echo* offers signaletic conditions of emergence for significations to arise without pre-determining how they will play out. What relations emerge depend on the system that arises through the interaction where the signals emitted from the balustrade mix with the signals of the body, creating an environment where lived relations between the human and the non-human, the past and the present, the physical place and the socio-cultural setting continuously and collectively individuate. The signaletic pertains to this transindividual potential for becoming-significant, and persists in the individuations that unfold relationally through the interaction, and

continue to function after the initial affective encounter.

## DISCUSSION AND CONCLUDING REMARKS

As I have argued throughout this article, there can be no doubt that the shift to real-time interactive and electronic media can benefit from a focus on the signal as a new paradigm for analysis. Such an analysis would focus on *how* we experience; how real-time interfaces create new kinds of affective encounters between people and technology, rather than *what* is experienced. Focusing on what makes us experience, what pulls us into and out of experience, is necessary for conceptualizing the impact of new technological assemblages and interactive environments on our affective experience of the world. However, as I have also argued we must be careful not to simply fall into the idea of one paradigm to replace the other. Instead, we should investigate what the signaletic allows us to say about already existing analytic approaches, to produce a fusion of approaches that unfold the dynamics of interactive technologies and environments.

To meet this challenge, I have turned to the work of Gilbert Simondon, which might function as a conceptual and philosophical starting point for moving back from the signal into a realm of signification. Simondon contributes to a thinking-together of the signal and signification, affect and emotion, as necessary to account for the experiential dynamics on a larger experiential continuum. As I have shown, incorporating these analytic dimensions in the understanding of interactive environments and technological assemblages helps unfold the experiential complexity at stake. It is necessary to account for how the affective is part of the emotional, how the signaletic becomes signification, not least to be able to qualify an interactive experience. As Simondon argues, it is not enough to have signals, if there is no signification. Following this, I have attempted to move more specifically into the realm of digital and interactive technologies via an analysis of Markus Kison's *Touched Echo*. In this analysis, I have shown how significations occur as lived relations that become more than interactive; relations that make felt the affective-emotive dynamics through the transindividual workings of

the interactive setup. This analysis also echoes Brian Massumi's claim that interactivity in itself is not enough to create a truly interactive experience:

It is not enough to champion interactivity. You have to have ways of evaluating what modes of experience it produces, what forms of life those modes of experience might develop, and what regimes of power might arise from those developments.<sup>25</sup>

To be truly interactive, a technological assemblage needs to be relational, creating conditions for lived relations.<sup>26</sup> And to be relational, the interactive setup must produce significations and collective individuations.

The article attempts to present a theoretical commentary to the relation between the sign and the signal through a Simondonian notion of signification. As such, it does not pretend to offer a fully-fledged analytic framework. Rather, the conceptual tour de force put forth seeks to creatively problematize the discourse on the relation between signal and signification as well as affect and emotion in order to unfold a more nuanced account of the analytic possibilities for making sense of the experiential impact of digital technologies and interactive environments.

## Notes

1. See among others Brian Massumi, *Parables for the Virtual: Movement, Affect, Sensation* (Durham/London: Duke University Press, 2002); Patricia T. Clough, ed., *The Affective Turn: Theorizing the Social* (Durham/London: Duke University Press, 2007); Mark B.N. Hansen, *New Philosophy for New Media* (Cambridge, MA: MIT Press, 2004); Anna Munster, *Materializing New Media—Embodiment in Information Aesthetics* (Hanover: Dartmouth College Press, 2006); Nigel Thrift, *Non-Representational Theory: Space, Politics, Affect* (London and New York: Taylor & Francis Group, Routledge, 2007); Melissa Gregg and Gregory J. Seigworth, eds., *The Affect Theory Reader* (Durham/London: Duke University Press, 2010).
2. See note above for references in cultural and critical theory, in interaction design this is explicated in among others Anthony Dunne, *Hertzian Tales* (London: Royal College of Art, 1999); John McCarthy and Peter Wright, *Technology as Experience* (Cambridge, MA: MIT Press, 2004).
3. Brian Massumi, "The Thinking-Feeling of What Happens [interview]", *Inflexions* 1 (2008), 18.
4. See for example Massumi, *Parables for the Virtual* and Thrift, *Non-Representational Theory*.
5. This article relates and further develops the explorations undertaken in an earlier article, Christoph Brunner and Jonas Fritsch, "Interactive Environments as Fields of Transduction," *Fibreculture*, 18 (2011), 118–145.
6. Gilbert Simondon, "The Genesis of the Individual", in *Incorporations*, eds. Jonathan Crary and Sanford Kwinter (New York: Zone Books, 1992), 296–319; Isabelle Stengers, "Résister à Simondon", *Multitudes* 18 (2004): 55–62; Erin Manning, *RelationScapes: Movement, Art, Philosophy* (Cambridge, MA: MIT Press, 2009); Brian Massumi, "'Technical Mentality' Revisited: Brian Massumi on Gilbert Simondon", *Parrhesia Journal*, no. 7–8 (2009): 36–45. Adrian Mackenzie, *Transductions; Bodies and Machines of Speed* (London/New York: Continuum, 2002).
7. See Muriel Combes, *Simondon. Individu et collectivité* (Paris: Presses Universitaires de France, 1999) for a comprehensive introduction and Brunner and Fritsch, "Interactive Environments" for an attempt to use Simondon's vocabulary to address challenges in the design and analysis of interactive environments. See Massumi, "'Technical Mentality' Revisited" for an elaborated discussion of Simondon's relevance today.
8. This introduction partly builds on previous work presented in Brunner and Fritsch, "Interactive Environments".
9. Gilbert Simondon, *L'individuation à la lumière des notions de formes et d'information* (Paris: Millon, 2005), 23.
10. *Ibid.*, 252.
11. *Ibid.*
12. *Ibid.*, 23.
13. *Ibid.*, 263. Here, the notion of an ensemble covers the preindividual state of a system from which individuations emerge.
14. *Ibid.*, 263.
15. *Ibid.* Translation appears and has been taken from: <http://fractalontology.wordpress.com/2007/11/28/a-short-list-of-gilbert-simondonsvocabulary/>
16. *Ibid.*, 307. In *Cinéma 2* where Deleuze develops his notion of the signal, he also stresses that what he terms signaletic material is neither a language system nor a language:  

It is a plastic mass, an a-signifying and a-syntactic material, a material not formed linguistically even though it is not amorphous and is formed semiotically, aesthetically and pragmatically. Gilles Deleuze, *Cinéma 2: The Time Image*, trans. Hugh Tomlinson and Robert Galeta (London, New York: Continuum, 2005), 28.
17. Simondon, *L'individuation à la lumière des notions de formes et d'information*, 307.
18. *Ibid.*, 223.

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19. Ibid.
20. Ibid., 247.
21. Ibid.
22. Ibid., 252. Simondon also names this relation “spirituality”, *ibid.*, 252.
23. Ibid., 260.
24. [http://www.markuskison.de/#touched\\_echo](http://www.markuskison.de/#touched_echo)
25. Massumi, “The Thinking-Feeling of What Happens [interview],” 9.
26. Ibid., 13.