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Neo-Animism and Design
A New Paradigm in Object Theory

Betti Marenko

Betti Marenko is Contextual Studies Programme Leader for Product Design at Central St Martins, University of the Arts London. Her work at the intersection of creative philosophy, materialities and design aims at developing lines of 'minor design'. She has recently edited *Deleuze and Design* with Jamie Brassett (Edinburgh University Press, forthcoming). Her current work on technology and magic considers animism as the key post-human, post-user, post-cognitive mode of interaction with objects, digital and non-digital. b.marenko@csm.arts.ac.uk

ABSTRACT This article argues that our apprehension of the world is increasingly colored by animistic connotations. Traces of animism – the idea that objects and other nonhuman entities possess a soul, life force, and qualities of personhood – are evident in the way we talk to our computers, cars, and smartphones, and in our expectations that they will reply more or less instantaneously. As the Internet of Things becomes more mainstream, the fact that our phone communicates with our thermostat, car, washing machine, or bathroom scale is no longer a future scenario; it is increasingly a shared reality. Our way of experiencing everyday objects is changing to accommodate their shifting nature, purpose, and agency.

KEYWORDS: neo-animism, ubiquitous computing, smart objects, Internet of Things, materiality

> Any sufficiently advanced technology is indistinguishable from magic.
>
> Arthur C. Clarke

> … almost everywhere in the world, we are seeing a kind of return to totemism and animism.
>
> Felix Guattari

> There is no way to devise a successor to nature, if we do not tackle the tricky question of animism anew.
>
> Bruno Latour

1877: Thomas Edison sings *Mary had a Little Lamb* into a cylinder, cranks up his "talking machine," and for the first time a human is able to listen to a reproduction of his own voice, sparking anxieties about the spirit world embodied in the very matter of electrically animated objects.

1956: Albert Lamorisse's movie *The Red Balloon*[1] poetically traces the relationship between a seemingly sentient balloon and a child. In the same year Roland Barthes' *Mythologies* offers an intellectual analysis of everyday things, and, with semiotics, transforms a car into a magical object.

2011: *Siri* is launched with the iPhone 4S. Now, not only you can use your phone to talk, you can also talk *to* your phone. And it talks back to you.

Introduction

The idea that we are "turning animist" to deal better with a world increasingly populated by smart objects and intelligent things is gaining approbation in interaction design. Animism is deployed in this discipline as a research method, a mythmaking narrative, and an "embodied fiction" that drives innovation in the "fluid, productive, and meaningful relationship between human and interactive systems" (Van Allen and McVeigh-Schultz 2013). Design theorist Brenda Laurel, who has been writing about interaction since the late 1970s, introduced the idea of "designed animism" (Laurel 2008) to describe the impact of pervasive computing on experience, human agency, and design. Designed animism, for Laurel, "forms the basis of a *poetics for a new world*" (Laurel 2008: 252), in which pervasive computing induces animistic responses. What matters most here is not so much an animistic belief (whether we actually believe that our laptop is alive), but the kinds of behaviors that occur as an *effect* of our interaction with intelligent objects.

The current literature on animism and interaction design[2] suggests that an animistic response emerges when technology connecting objects becomes simultaneously smarter, more pervasive,

and more invisible. Cultural critic Erik Davis, one of the first to popularize the notion of techno (or digital) animism, argues that a degree of animism can be seen as "a psychologically appropriate and imaginatively pragmatic response to the peculiar qualities of the information jungle. We associate intelligence with what reads and writes, and nowadays everything electronic reads and writes" (1998: 225). Consider smartphones, for example. The kinds of bonds we may develop with our smartphones are cognitively, emotionally, and somatically complicated. The smartphone is no longer a mere "digital Swiss army-knife"; it is an object to which we give our undivided attention and in which we make an intense emotional investment – not to mention the new repertoire of physical gestures we have learned to employ. All our (often mildly compulsive) touching, tapping, pinching, stretching, stroking, swiping, dragging, scrolling, and holding are a peculiar set of new phenomena that I argue are the embodied expression of a greater body of animistic inclinations.

We grow attached to our smartphone, we expect an instantaneous interaction, and we simply cannot live without it. In a sense, the smartphone has morphed into a trusted friend, with its own presence, voice, and distinct personality. It is generously giving and accommodating, but also demanding and assertive, and occasionally obstinate, whiny, even moody. Our smartphone becomes an extension of our own cognition and emotions. Because of this animated and responsive presence, we often end up treating our smartphone as if it is alive.

What Erik Davis could not have predicted in 1998 was the tremendous expansion in the number and variety of smart objects. The intelligence of digital objects as a cultural phenomenon can be described in terms of what anthropologist Alfred Gell calls the "enchantment of technology." This is "the power that technical processes have of casting a spell over us so that we see the real world in an enchanted form" (Gell 1992: 44).[3] If technology has the power to enchant and spellbind us, however, the ways in which revolutionary technological innovations are reshaping human behavior bring up yet other questions of a philosophical nature. These questions explore what might count as an object and what might count as a subject when both object and subject are able to talk and react to each other in unprecedented ways.

I would like to argue that the current pace of digital innovation encourages consideration of the animate and inanimate assemblage in ways that were unthinkable only a decade ago. What we face is not simply a question of cultural perception dictating whether things are taken to be inert or alive. Rather, it is how to characterize our response to this new breed of human-made things that are *simultaneously* animate and inanimate, and capable of expressing additive intelligence. Home monitoring devices such as *SmartThings*, *Spotter*, or *Ubi*,[4] for example, are Internet-connected objects that allow users to switch appliances on or off remotely, to control when someone arrives or

leaves home, to check whether doors are locked or not, and so on. That the once futuristic vision of a smart, responsive home is becoming a reality cannot help but raise questions about the nature of the objects with which we live. If the radiator in my living room can make autonomous decisions based on my lifestyle patterns, shouldn't my relationship with this mundane appliance make me question who is in charge? These kinds of scenarios suggest philosophical questions about who is the object and who is the subject – and if entities can still be defined in these terms.

I would like to argue that the digitally driven shift in the ways people coalesce with smart objects demands a new paradigm that addresses people's somatic and animistic cohabitation with things. This new materialist perspective should acknowledge the powerful ways objects that are not simply inanimate shape our lives. Some of my ideas are prompted by Bill Brown's notion of the "force things have in society" (Brown 2001: 9). Brown observes that rather than objects, things denote particular subject–object relationships in specific temporal and spatial contexts. What, then, might be the character of the subject–object relationship in a world that is populated by increasingly responsive things?

According to Brown, what differentiates things from objects is both latency and excess – what is not yet formed, and what is irreducible. This characterization is what constitutes the power of things, and it is what turns objects into magical entities, "values, fetishes, idols and totems" (Brown 2001: 5). How is this excess, this magic, manifested in a world in which objects are smartly animated? Can animism reveal something about the way we experience the relationship between the animate and the inanimate? Where does the frontier between animate and inanimate lie in a world of smart devices?

As Gell contends (1988), the power of things to enchant and lure us is a function of their technological existence. There is, after all, a direct connection between technology and magic. Technical innovation is a result of technical feats that are perceived as magic until the moment they become innovation. On this basis, I argue that one connection between magic and technology happens through the Internet of Things.[5] A neo-animist paradigm, I contend, captures this magic–technology connection and posits animism as an affective, post-cognitive framework that explains how we relate to things.

The Internet of Things, Ubicomp-*Scape*, Everyware

The term the "Internet of Things" refers to the uber-connectivity by which ordinary objects sense and process information. For interaction designer Mike Kuniavsky uber-connectivity is "the collection of all objects with information shadows" (2010: 79). The notion of "shadow" vividly evokes the invisible, yet powerfully present potential of connected objects.[6] This uber-connectivity has also been dubbed *ubiquitous computing* (ubicomp) (Dourish and Bell 2011),

and *everyware*, which technology writer Adam Greenfield describes as "information processing embedded in the objects and surfaces of everyday life" (2006: 18). Whichever term we choose, I want to argue that in a digitally connected world our apprehension of objects is more and more prone to deploy pre-modern (irrational? anti-modern? nevermodern?) affective faculties. Animism, magic, enchantment, and sensuousness are intertwined – and they are manifested in the ways that we experience this connected object-*scape* that is made of digital, post-PC devices, smart objects, pervasive computing, ambient intelligence, tangible interaction, and cloud services. Such an object-*scape* should be understood as a distribution of material agencies, experienced animistically, and best read through the lens of a neo-animist paradigm. It seems to me that the cognitive and somatic competencies emerging as those appropriate to an ecosystem of responsive objects are calling for a new theory. A neo-animist paradigm can provide such a new way of thinking since it accounts for some of the most striking tangible manifestations of our relationships with digital objects. A neo-animist paradigm accounts for new forms of cognition – embodied, sensorial, contextual, and distributed – that are produced by ambient intelligence through mapping, tagging, and data gathering. A neo-animist paradigm also captures our repertoire of somatic, finger-based gestures, the embodied practices of stroking, pocketing, and mindless holding mentioned earlier.

Neo-animism suggests ways to rethink some of the notions that both the theory and practice of design assume are fixed – in particular, design studies' focus on user-centered design. Neo-animism, in fact, champions the notion that user and object should be located in wide ecosystems of human–thing entanglements. The boundary between user and object becomes fluid and unstable in a landscape where RFID tagged objects – objects that are tracked using radio-frequency tags – communicate autonomously in the background beyond our awareness. This RFID object landscape fashions a map of micro-relations across sensors and databases. *IFTTT (If This Then That)* is an online service that lets users control their physical environment digitally by setting up a series of "recipes" based on the formula "if this happens, then it triggers that action."[7] I could, for example, set up an *IFTTT* recipe stating that the coffeemaker in the kitchen will start brewing as soon as I get out of bed each morning, or that the light in my bedroom should switch on if it starts raining. These events are planned according to "recipes," but they are carried out automatically. Ultimately, I believe, this sort of technology will reposition the traditional design touch points of function, form, user, and object. Moreover, our role as user/consumer/subject will have to shift from fixed, diametrically opposite positions to a continuum of human and nonhuman agencies.

Because of its boundary-disrupting nature, neo-animism is a conceptual tool that can illuminate this shift, as the next section explains.

Neo-animism can provide a powerful alternative to the images and figurations we conjure to describe the current human–digital thing entanglement. It can do so, however, provided that it is conceptually framed neither exclusively as a design method, nor as a philosophical position. Indeed, this article makes a plea for a way of engaging design with philosophy, via a reappraisal of animism.

The Encounter between Philosophy and Design

Design needs to be alert to ideas circulating outside its familiar domain. It needs to be conversant with what philosophers and theorists are thinking, especially regarding the world of objects. There is potential for design to reflect the current robust interest in everything "thing." Various materialist philosophies (Braidotti 2002; Cohen 2012; Coole and Frost 2010) and anthropological theories (Ingold 2013) are rethinking things beyond their self-contained, bounded, and fixed meanings, positing that things are a distribution of intensities and material agencies. The significance of these ideas should not be underestimated by design. An apposite example is anthropologist Tim Ingold's stirring description of a kite: first as a lifeless object made of ribbon, paper, bamboo, and glue, then as a *thing* (kite-in-the-air) made of all these parts together with the wind and the person who flies it (Ingold 2013). The ways that new materialist theories reflect agency and the symmetry between human and nonhuman actors ought to reverberate with design. Design, as a complex nexus of theories, practices, cultures, discourses, and industries – each with its own material entanglements – perfectly embodies the critical questions in current theories of things. Design also accords with the way these theories reconfigure ideas about the world we inhabit.

I will therefore present two intersecting motifs that reflect my intention of engaging both design and philosophy. First, I argue that an animistic sensibility is percolating through our culture, reconfiguring relationships between human and nonhuman agencies – in particular, in the digital devices landscape. To articulate this first motif, I propose a neo-animist paradigm whose genealogy is located in theories of agency (Latour 2005, 2009a, 2009b, 2010) and at the intersection of material culture with anthropology and archaeology (Guthrie 1993; Bird-David 1999; Harvey 2005; Brown and Walker 2008; Alberti and Bray 2009; Haber 2009; Holbraad 2009; Malafouris and Renfrew 2010; Hodder 2012). My second motif proposes that a neo-animist paradigm is affective, emergent, relational, and that it is predicated upon a Spinozian–Deleuzian notion of matter. Indeed, the power of neo-animism lies in both the conceptual and epistemological shift that it allows and, crucially, in the notion of materiality that underpins it – a radical, molecular, and vitalistic materialism (Deleuze and Guattari 1987; Bennett 2001, 2010; Braidotti 2002, 2006).

Materialist philosophies, technology studies, theories of affect, interaction design, ubicomp theories, anthropology, dystopian

literature, and critical design are some of the intellectual fields I harvest to use as conceptual tools to think with – and with which to think anew. I do so in order to formulate a paradigm as emergent as the animist phenomena it is attempting to capture. Philosopher Felix Guattari (1995) famously wrote about being an idea-thief who steals from different sources to use as tools to build a "conceptual chemistry." I have made Guattari's dictum my own, even more so as I reflect upon our entanglement with things from the perspective of a philosopher speculating on design. My in-between position is not so much a precarious as a privileged one, as it allows me to look both ways, and not only to think about design as a philosopher, but also to attempt to think about philosophy as a designer.

Animisms Old and New: A Critique

Animism has recently undergone a revaluation that has redeemed it from the anthropological enterprise that generated it in the nineteenth century. This revaluation has also singled out animism as a potent new signifier of the current spirit (Marenko 2009; Franke 2010, 2011; Papapetros 2012). Nineteenth-century positivism – with its pragmatic and rational view of social phenomena, and its faith in techno-scientific progress and empirical methods – saw animism as a failed epistemology, an error or, at best, an immature stage in the development of individual and society.[8] Current notions of animism, on the other hand, question the boundaries between the social world (human) and the material world (nonhuman), as well as the animate and the inanimate. Neo-animism prompts us to rethink our relationships with the world, and where the frontier between human and nonhuman, living and non-living, might be located.

In his passionate call for a re-*animation* of Western thought, Ingold (2006) states that when determining what counts as animism, the ontological distinction – ontology is the study of the nature of being – between the living and the non-living is never given. This distinction between the living and non-living has less to do with taxonomies than with entirely different concepts of life itself. This distinction could also be appropriated to suggest a shift from ontology (singular) to ontologies (plural). While scientific Cartesian taxonomies are predicated upon fixed notions that cannot be transferred from one typology to another (say, animal, vegetable, mineral), multiple ontologies capture the fluctuating and less permanent nature of entities that might belong to more than one category and whose nature straddles fixed boundaries.[9]

Anthropologist Nurit Bird-David offers a significant reconceptualization of animism. Taking a critical stance against the canonical corpus on animism, she argues instead for a relational framework that accounts for animism's composite, pluralistic, and situated aspects. She uses this relational epistemology to explain what happens when "we animate the computers we use, the plants we grow and the cars we drive" (Bird-David 1999: 78). According to Bird-David, by

reframing objects relationally, we learn "what they do in relation to what we do, how they respond to our behaviour, how they act towards us, what their situational and emergent behaviour (rather than their constitutive matter) is" (ibid.: 78). This position echoes anthropologist Marilyn Strathern's seminal work on Melanesian cultures (1988) in which any individual is defined by the sum of his/her relationships with others, including humans and nonhuman things such as objects, animals, minerals, plants, and natural events. Strathern describes people in Melanesia as *dividuals* rather than *individuals* – not self-contained, bounded, and whole in the Western sense, but partible and divisible. People give a part of themselves, for example, through gifts to others. Objects that are exchanged are not something that symbolically *stand* for people, Strathern argues. They are "extracted from one and absorbed by another" (Strathern 1988: 178). There is therefore continuity between people and things, and an entire ecology of relationships, each playing a part in the constitution of the subject–object nexus. Reconfigured as a relational ontology that is characterized by mutuality, emergence, and situated-ness, animism becomes a tool to explore our relationships to objects. Even more important, animism becomes the standpoint from which to rethink the centrality of human rationality. Bird-David's relational epistemology described above is a good example of how anthropologists are reframing the relationships between humans and things in animistic terms by bypassing the dichotomy between nature and culture. Indeed, what has been called the "animistic turn"[10] is one of the most relevant contributions by anthropology to Western social theory (Haber 2009).

Animism as a disruptive, boundary-breaking force can succeed, though, only if it casts aside its nineteenth-century foundational imaginary. This is the reason that I am not advocating a "return" of animism. Anthropologist Martin Holbraad (2009) warns us not to think of animism as a soul living inside of an object. For Holbraad, doing so leads to the epistemological "cul-de-sac" – appropriating animist ontologies that affirm matter is imbued with non-material (spiritual) properties. To avoid what Holbraad calls a "cognitive trap,"[11] we must acknowledge the inorganic vitalism that is the root of animism and, as I argue in the next section, we should rethink matter itself.

For a Neo-Animist Paradigm

A neo-animist paradigm disputes the classical notion of animism as a belief that imputes life to things. Animism is not about non-material properties projected upon inert environmental matter, but is instead:

> The dynamic, transformative potential of the entire field of relations within which beings of all kinds, more or less person-like or thing-like, continually and reciprocally bring one another into existence. The animacy of the lifeworld, in short, is not the result of an infusion of spirit into substance or agency into

> materiality, but is rather ontologically prior to their differentiation. (Ingold 2006: 68)

Ingold's quote suggests that the neo-animist paradigm is underpinned by a radical theory of matter. In a Spinozian–Deleuzian perspective, matter has a continual impact on the world. This notion is strikingly antithetical to the traditional Western–Cartesian notion that matter is external and inert – an idea that configures the relationships between humans and things as natural rather than social, and as given rather than emergent.

Interestingly, both constructivist and essentialist positions (the former assuming that reality is actively created by social interactions, the later assuming an universal essence that gives meaning to substance) view matter as passive and shaped either by human conventions according to constructivist ideas, or by a transcendent ideal according to essentialism (De Landa 1999). For Gilles Deleuze (1988), however, matter is fully constitutive of the world through its ceaseless and spontaneous persistence. Imagine matter as perpetually traversed by flows of inorganic life and animated by a multiplicity of nonhuman agencies. This idea is exemplified by the "swarm of electrons" image that is evoked by Brown's passage "somewhere beyond or beneath the phenomena we see and touch there lurks some other life and law of things" (2001: 6). This nonhuman dynamism – flows of particles, and their differentiations, velocities, and effervescences – occurs prior to any determination of form. Matter vibrates, matter is animated, and matter indicates ways we should relate to it. Deleuze and Guattari famously write of how artisans must surrender to wood, how they must follow the material's fibers and propensities "instead of imposing a form upon a matter" (Deleuze and Guattari 1987: 408).

The notion that matter has propensities to which we can surrender forces us to "zoom in" on the ways things affect us. The "sensuous density" of things, according to philosopher Alphonso Lingis (1998), contains directives that motivate discovery. From a skillfully designed chair to the exquisitely designed interface of the LG Chocolate phone (2006) – designed with buttons that glow red when the phone is switched on – things are never inert but are "expressive subjects, entities, powers, potencies" (Abram 1996: 130). The number of dynamic, affective, animate things is increasing. According to social scientist Nigel Thrift, we are living in a world in which "more and more things are able to become able" (Thrift 2011: 11).

My analysis above makes it clear that the agency of things, and the capacity of nonhuman/non-subject things to generate action and induce change, has become a major focus in material culture, anthropology, science and technology studies, and thing theory (Knappet 2005; Latour 2005; Ingold 2006). What these approaches have in common is the view that things matter because they shape

cultural and social practices, human behavior, subjectivities, and the conceptual processes that we use to make sense of the world.

We should not, however, consider agency to be an innate property of things, or that agency signifies their intentionality (Ingold 2013). Agency is not something that objects *have*. Rather, agency is something that emerges out of encounters with things. It is in the milieu of these encounters – between things and us, and between things and things – that agency is actualized. Philosopher Manuel De Landa, who has proposed the idea of agency actualization (2002), has reconsidered psychologist James J. Gibson's classic theory of affordance in which objects contain latent engagements with the user. De Landa emphasizes how an object's potential has nothing to do with its intrinsic properties, but becomes actualized only in specific contexts. Thus, according to De Landa, agency is not a quality of the object itself, but a property that emerges from the relationship between the object and the particular environment with which is interacting. This suggests a broad notion of agency, which is not based upon an object's power to react or to make us act. Instead, this is a relational, emergent, and fully embodied agency – it is not something that objects *have* but something that objects *are*.

This embodiment is the reason we need a radical materialism that acknowledges the forces traversing both human and nonhuman entities (Ingold 2013). Philosophers Jane Bennett (2001, 2010) and Rosi Braidotti (2002, 2006) contribute rich reflections on this topic. Bennett's vitalist materialism project, in particular, aims to reclaim (and boost in the process) the status of the vibrant matter of which everything is made. She argues that vitality is "the capacity of things – edibles, commodities, storms, metals – not only to impede or block the will and designs of humans but also to act as quasi agents or forces with trajectories, propensities, or tendencies of their own" (Bennett 2010: viii). This is nonhuman agent territory. Bennett's crucial point is that "impersonal affect or material vibrancy is not a spiritual supplement or 'life force' added to the matter said to house it" (ibid.: xiii). This is, therefore, *not* a vitalism in the traditional sense of the term, one that postulates an external life force entering and animating a body. Rather, it is a vitalism that strongly equates materiality with the circulation of affect. Deleuze and Guattari cite metallurgy to demonstrate the capabilities of a material. They explain, "What metal and metallurgy bring to light is a life proper to matter, a vital state of matter as such, a material vitalism that doubtless exists everywhere but is ordinarily hidden or covered, rendered unrecognizable, dissociated by the hylomorphic model" (Deleuze and Guattari 1987: 411).

Spinoza's voice resonates in this discussion: he argues that matter is neither subordinate to thought, nor is it inert mass that needs form imposed from the outside. Matter is instead both production and sensibility. Matter is likewise an active agent that gives shape to future events. We come to know the world of things by means of sticky, messy explorations that are at once material–semiotic,

sensuous–cognitive, and affective–emergent. Cognition is increasingly understood as interrelational; it is a sensuous experiential process that emerges from the relationships between people and things (Hutchins 1995). Humans are molded by matter and they mold matter in a simultaneous, mutually constitutive process.

Materiality, however, is not only the consideration of physical materials; some of the materials we encounter are not "stuff," but habits, patterns, behaviors, territories, belief systems, distribution systems, or experiences. Ubiquitous computing, for instance, situates information as material. Kuniavsky (2010) explains the meaning of the expression "information processing": information is handled, manipulated, and, crucially, embedded in an increasing number and variety of objects.[12] Self-monitoring devices such as *Jawbone's Up* and *FitBit*,[13] for example, allow users to collect and utilize data on everyday activities like sleep patterns and eating habits. These objects are activity trackers, wireless-enabled wearable devices, often in wristband form, that collect personal metrics such as the number of steps walked, the type of food eaten, or the quality of sleep. The data they collect helps mold the user's behavior.

This is also Bennett's point when she recounts the intrinsic vitality emanating from a random assemblage of objects found in the gutter. She describes things as vividly exceeding human objectification and as irreducible by human objectification. Indeed, she talks of "*Thing-Power*: the curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle" (Bennett 2010: 6). This brings us back to Brown (2001), whose "curious ability of inanimate things to animate" evokes another perspective on the animation of things – namely, Marx's commodity fetishism. Indeed, anthropologist Michael Taussig (1993) maintains that Marx could have used the term "animism" instead of "fetishism." For Bennett, Marx is likewise "too dismissive of animism" as he "reduces it to an atavistic practice of fetishization" (2001: 117). As the commodity conceals the social nature of the process of its production, what ensues is a sort of animistic glow that casts a spell over the consumer and is the defining form of our contact with commodities. If Marx's fetishization applies to every produced good, it is certainly evident when we think about the experiential attributes that make Apple products into such seductive, alluring, and mesmerizing entities. The wondrous "enchantment" that is harbored within commodities can be understood as a form of secular sympathetic magic or, to borrow critic Christopher Bracken's expression, "a capitalist *mana*" (2007; 166). Philosophers Adorno and Horkheimer wrote: "animism had endowed things with souls; industrialism makes souls into things" (2002: 21). For Horkheimer and Adorno, the Enlightenment meant that things were robbed of their power to enchant.

Can it be, though, that this power to enchant still persists and radiates in the digital glow of our devices? Can we envision a circulation of souls taking place – going back and forth between production

and consumption – as commodities are charged with one soul in production and then recharged with another one during consumption? Taussig (1993) maintains that no matter the destinies of capitalism, the magic and animistic power of objects is here to stay. This animistic persistence is what my neo-animist paradigm explicates by looking closely at familiar, embodied experiences of digital devices.

Ubicomp-*Scape* and Techno-Animism

Historian Lorraine Daston (2008) believes that our culture is permeated by the ambivalence of "idol versus evidence" when we are confronted with things that "talk." On one hand, things are perceived as false gods prone to be cunning and deceiving; on the other, *res ipsa loquitur*: things do speak for themselves as the purest incontrovertible evidence of reality. A neo-animist paradigm can move beyond this dichotomy by providing a new perspective with which to investigate things, but also by explicitly shifting the issue from talking about things to talking *with* things. We are now accustomed to objects talking to us, from our car GPS to the new *Nest* smoke alarm, and increasingly we may have the experience of talking with objects and having "conversations" with them; Apple's *Siri* and Google Voice Search are familiar examples. Both are voice-activated personal assistants and "knowledge navigators" that exhort users to talk to them. This interaction fosters and normalizes this behavior. *Siri* will soon be integrated into cars with the *Eyes Free* voice control system, and it will then be possible to have useful "chats" with a car. It is surely a sign of the times that director Spike Jonze's latest movie *Her* (2013) tells the (disturbing? prophetic? mundane?) story of a man who falls in love with his voice-activated operating system, Samantha.

The ubicomp-*scape* in which we are immersed fosters new types of social interactions between users and objects because the emergent agency of these objects tends to be decoded in animist terms. Digital technologies don't just mediate between people; they participate fully in the ongoing conversation (McCullough 2004; Allison 2006; Shepard 2011).

The 2011 MoMA exhibition *Talk to Me* was a dazzling showcase of this process (see Antonelli 2011). *Talk to Me* presented a collection of devices with intelligent agency: they read and wrote, they talked back, and they talked to each other – all the while providing a critical commentary on the entangled human–thing networks we inhabit. The exponential increase in "animated electronic encounters" (Hunt 2011) escalates newly emerging thing–human interaction processes. In this landscape in which technology meets wetware – defined as our embodied brain and thought processes[14] – we assimilate new forms of embodied and intuitive knowledge. The 2011 Global Mobile Award winner *GlowCaps*, for instance, is the first "smart" pill bottle that reminds people to take their medication via light, sounds, or messaging. *Clocky* is an alarm clock that jumps off the bedside

table, and then runs and hides if you don't get out of bed to switch it off. MIT Design Lab's *Proverbial Wallet* is a prototype wallet that physically swells and shrinks to reflect the balance in the user's accounts, and also resists attempts to be opened when the owner's bank balance is "in the red."[15]

We don't experience these devices as "dumb," passive things. On the contrary, we experience them as "smart," active entities whose agency – pervasive, immersive, soft, emergent, adaptive, and vocal – cannot be ignored. This ubicomp-*scape* is a field of distributed agencies in which emergent animation and responsiveness questions the distinction between the animate and inanimate. As this landscape of uber-connectivity becomes the invisible, intangible, and "switched on" backdrop to our daily lives, we deploy an animist outlook to give meaning to an otherwise fairly incomprehensible world of objects. Kuniavsky (2010) cites animism and enchantment as two of the most powerful narratives we use to explain interaction: "Virtually every project that emphasizes how devices react to people is in a sense animist" (2010: 34). Greenfield (2006) similarly argues that imbuing objects around us with animated sentience is a potent driver of innovation in the ubicomp-*scape*. The more that technology is woven seamlessly into the fabric of everyday life (Weiser 1991), the more it goes unnoticed. Users are particularly incognizant when they use ordinary objects whose technological operations are "below the radar." This incognizance happens already with Wi-Fi connectivity, data storage, and automatic updates, and more such devices are on the horizon. Voice-activated devices like the home monitoring *Ubi* mentioned earlier, for instance, connect directly to the Internet through Wi-Fi and seamlessly merge into the background. This phenomenon equates to a colonization of everyday life by information technology (Greenfield 2006). According to media scholar Mark Andrejevic (2005), the more interactivity becomes invisible, the more users tend to delegate to increasingly smart devices. And the more these "smart" devices seem intelligent, the more the stories we employ to make sense of them tilt toward animism. One smart object that already shows this tendency is *Twine* (Figure 1), one of the first home monitors with sensors for moisture, temperature, and vibration with an interface that sends notifications (via email, SMS, Twitter, and more) whenever it notices changes in domestic settings. *Twine* can alert you if your laundry is done, reveal how many hours your kids have been watching TV, and detect leaks, floods, intruders, and so on. *Twine*'s tagline – "*Listen to your home, wherever you are*" – suggests fully embodied interactions between a living, acting, and sentient home and its inhabitants. Another example is *RolyPoly* (Figure 2), a pair of egg-like objects that mirror each other's movements even when physically separated. Two people can sense each other's "presence" despite significant physical distance between them: a nudge to one of the *RolyPoly* pair will create a simultaneous reaction in its twin. More frivolous perhaps, but nonetheless symptomatic of

Figure 1
Twine. Image courtesy of and used with permission of Supermechanical (http://supermechanical.com).

the animistic tendencies I am discussing here, are *Olly* and *Molly* (Figures 3 and 4) a pair of social media Web robots. While *Olly* converts notifications into customizable smells, *Molly* turns tweets into sweets. They are both USB-connected devices that respond to the user's activity on social media with a tailor-made reward system of either fragrances or gumballs. *Molly* counts the number of re-tweets,

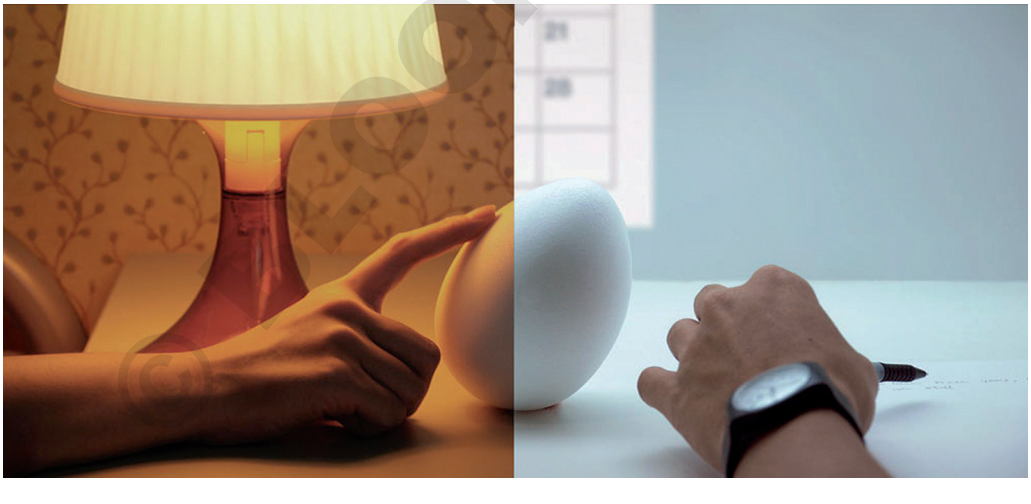

Figure 2
RolyPoly. Image courtesy of and used with permission of the Design Incubation Centre, National University of Singapore. © Design Incubation Centre, National University of Singapore.

Figure 3
Olly. Image courtesy of and used with permission of Mint Digital Ltd.

and once a certain number of re-tweets is reached, she rewards the user with a sweet. Finally, perhaps the best-known smart device, *Nest* (Figure 5) is an intelligent thermostat that monitors users activities throughout the day and learns to adapt to their living patterns. The same company that created this thermostat has just introduced a new typology of smoke and carbon monoxide alarm that forsakes the piercing sound of conventional alarms in favor of a talking device that "thinks before it speaks." A human voice tells the user exactly what's wrong, where the problem is and what to do using sentences like "Heads-up. There's smoke in the living room." and "Emergency. There's carbon monoxide in the bedroom. Move to fresh air."

Figure 4
Molly. Image courtesy of and used with permission of Mint Digital Ltd.

Figure 5
Nest. Image courtesy of and used with permission of Nest.

The above examples can all be considered instances of what author Bruce Sterling (2005) and technologist Julian Bleecker (2009) call *spimes* and *blogjects*. These two terms describe material objects with immaterial identities that are traceable in space and time and that engage in conversations with other objects. Spimes and blogjects have remarkable consequences for the embodiment of our interactions with devices and for our imaginations. In other words, spimes and blogjects are part of a field of interaction in which nonhuman agents have a pervasive, yet invisible, impact on the rest of the world. Our occupancy in this world is changing in order to accommodate the enrollment among us of these assertive objects whose agency, as Bruno Latour would say, speaks loudly of matters of concerns (2009a).

This situation reverberates in the design language of digital devices. Precisely because they possess an information shadow, a digital presence in the datasphere, their designs tend to become increasingly uniform. This is true for the omnipresent black, rectangular, pocket-size shape that we are so used to holding in our hands – whether it is an iPod, a smartphone, or a tablet. It is also true of the commonplace white square box that seems to be the go-to design language of several of the smart devices that I discuss above. The uniformity of design language has nothing to do with the old modernist *dictum* "form follows function." Rather, it is predicated upon a different premise: Sociologist Richard Stivers (1999) argues that the physical forms of objects with which we are entangled are increasingly neutral, standardized, and rational, while their content

is understood via a combination of irrational and somatic competences. Fascination and magical thinking, triggered in great part by the fact that we typically do not know how these devices work, are meshed with intense somatic and sensorial activity.

These rectangular handheld devices that have a range of capabilities, which interaction designer Philip van Allen (2011) calls "slabs," become the app that the user is running. For these gadgets, the app *is* the device. Jeremy Pitt advocates a related concept: "There is no longer a box, a user, and an interface between them. The environment is the interface, and the user is in the environment; and so the user can also be the interface" (2012: 12). The distinction between hardware, software, and interaction dissolves, producing a brand of commingled sensory experiences that transfix and transport their users.

The wonder and delight with which we experience technological devices are not new (Bailey 2005), nor do they only pertain to interactions with digital devices. The peculiar combination of irrational, magical thinking and somatic competencies that I describe in this article builds on Gell's "enchantment of technology." Gell's irrational and somatic competencies should integrate with the animistic tenor of our interactions with the responsive agents in our object-*scapes*.

Conclusions

Nigel Thrift explains that the "practical vocabularies" for practices that coalesce around things shape-shift much faster than do cultural paradigms. Any theoretical lexicon that hopes to encapsulate the world of things needs to capture the ontologies that underpin this world. It is usual for theoretical discourses to play catch-up with practice. I would like to propose that – building upon John Ruskin's notion of the "pathetic fallacy" – a neo-animist paradigm avoids the "techno-pathetic fallacy," with its nightmarish vision of an impending insurrection of objects.[16] Neo-animism sidesteps the techno-pathetic fallacy because it articulates objects' material presence and agency right alongside our affective engagement with them. This paradigm also offers an alternative to considering the ubicomp-*scape* as solely the last upgrade of commodity fetishism in the society of the spectacle. Instead, it offers a bold new way to rethink the complexity and pervasiveness of a world full of things that talk to each other and to us. This neo-animist paradigm includes a world full of things that react, respond, and modify themselves according to algorithmic modulations and by mining users' habits, wants, and needs. Neo-animism tenders a landscape of agents that behave as if they were intelligent, autonomous, and alive. What is happening around us is not the insurrection of objects both dreamed of and feared in literature. What is happening is that objects now begin to animate *not* as we leave the room – as in Hans Christian Andersen's fables or in Joseph Kafka's enigmatic story of Odradek – but as we enter it. We should not fear an uprising of things precisely because they are closer to that thing we call "us" than ever before.

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Notes

1. *The Red Balloon* (1956). Directed by Albert Lamorisse. Paris, Films Montsouris (original title: *Le Ballon Rouge*).
2. The literature on design interaction and animism is not abundant, but it is steadily growing. Aside from the previously mentioned Van Allen and McVeigh-Schultz (2013), pertinent papers addressing this topic are Beran et al. (2011), McVeigh-Schultz et al. (2012), Rod and Kera (2010). See also Kuniavsky (2007) who discusses some aspects of animism and enchantment in interaction design.
3. See also Gell (1988) on the relationship between technology and magic.
4. See *SmartThings*, http://www.smartthings.com/; *Spotter*, http://www.quirky.com/shop/609-Spotter-Multipurpose-Sensors; *Ubi* http://theubi.com/.
5. The term the "Internet of Things" was coined by the staff at the MIT Auto-ID Labs in 1999 where the idea that non-electronic things should have their digital identities was first elaborated. This concept is now becoming more mainstream with the number of objects connected to the Internet having surpassed the number of people in the world (According to Cisco, the number of Internet-connected devices reached 8.7 billion in 2012. This number includes traditional computer devices, mobile devices, and the new industrial and consumer

devices that we think of as things. Cisco projections state that there will be about 15 billion devices connected by 2015, and around 40 billion devices by 2020 (see Evans 2011).

6. Technically, there are several systems of identification that allow objects to have a shadow: barcodes in most retail packaging, QR Codes, Radio-frequency ID (RFID), SIM cards, magnetic stripes (Kuniavsky 2010).
7. See *IFTTT*, https://ifttt.com/.
8. For anthropologist Edward B. Tylor (1958 [1871]), children and primitives are the best examples of animists as they are both unable to distinguish animate from inanimate, and they both have a delirious and deluded perception of the world.
9. In her work on the interaction between Native Americans and the material world, anthropologist Maria Zedeno discusses these sorts of multiple ontologies and writes about objects whose "membership in a given class according to animate dispositions is ambivalent and unpredictable" (2009: 409).
10. See Brown and Walker (2008) for a special issue of the *Journal of Archaeological Method and Theory* devoted to the "animistic turn."
11. Holbraad critiques Alfred Gell's (1998) notion of agency as it assumes to understand animistic beliefs without having the necessary theoretical frameworks to support it. For Holbraad, Gell's agency remains irreducibly human and invested in things only in a derivative and secondary manner.
12. Kuniavsky (2010) notes how devices made with information processing are designed differently from those devices without information and are normally called "consumer electronics" while objects made with the same material but no chips are called "housewares." He shows how unnecessary these distinctions are as information can be incorporated into objects in a number of ways (i.e. smart materials).
13. See *Jawbone's Up*, https://jawbone.com/up; *FitBit*, http://www.fitbit.com/.
15. According to Rudy Rucker, cyberpunk writer who together with Bruce Sterling first employed this term, it broadly indicates the *generative code for an organism*. http://www.rudyrucker.com/blog/2007/08/25/what-is-wetware/ (accessed December 10, 2013).
16. *Glowcaps*, http://www.vitality.net/glowcaps.html; *Clocky*, http://www.nandahome.com/products/clocky/; *Proverbial Wallet*, http://eco.media.mit.edu/static/proverbialwallets/index.html.
17. As the recently established *Cambridge Project for Existential Risk to Mankind* seems to suggest. http://cser.org/ (accessed December 10, 2013).

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