Introduction

Author draft

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In 1966, MIT computer scientists and AI pioneer Joseph Weizenbaum presented the first chatbot, a computer program able to entertain written conversations with human users, called ELIZA. In the paper describing his creation, he predicted that the program would initially arouse wonder for its apparent intelligence, even if it actually provided only the illusion of it. Yet, he pointed out, "once a particular program is unmasked, once its inner workings are explained in language sufficiently plain to induce understandings, its magic crumbles away."[1] He believed, in other words, that the illusion was due to lack of knowledge about the programme, and that consequently, once its actual functioning was revealed, the aura of magic would fade away. He soon found out that this was not the case: many, even those who knew well that ELIZA was nothing but a skilful "computer trick," would fall into the illusion, engaging in personal conversations with the programme and treating it as a real interlocutor. Magic, he discovered, does not easily "crumble away": it is integral part to how people use computer technologies.[2]

The early dream among computer scientists of making computers not only accessible to everybody, but also understood by all users as rational machines devoid of any magical connotation dissolved in the late 1970s and 1980s with the rise of personal computers that

made digital devices a part of everyday life for growing masses of people.[3] As users interacted with computers performing increasingly complex tasks, it became clear that such interactions cannot be explained by pointing to the functioning of these machines alone: the meanings and beliefs that people attribute to them have to be equally considered.[4] This book moves from the consideration that digital media - conceived of as technologies, artefacts, as well as the systems of knowledge and values shaping our interaction with them - cannot be analyzed outside the system of beliefs and performative rituals that inform and prepare their use. The question of what we believe, and of how our systems of belief inform our experience and interactions, is inextricable from the question of how we perceive, employ, and actively shape digital media technologies and environments.

How did we come to associate things such as mind reading and spirit communications with the functioning of digital technologies? Does the dignity accorded to the human and natural worlds within traditional religions translate to gadgets, avatars, or robots? How does the Internet's capacity to facilitate the proliferation of beliefs help blur the boundaries between what is considered fictional and factual? The essays collected in this volume address these and similar questions, challenging and redefining established understandings of digital media and culture by employing the notions of belief, religion, and the supernatural. Situated at the theoretical interface between the fields of media studies and religious studies, it aims to unveil the multiple ways in which new media intersect with belief in the supernatural.

Recent scholarship has criticized rigid distinctions between "old" and "new" media and also between analog and digital media, pointing to the fact that our digital age cannot be understood by defining media according to age, or by isolating specific technologies that represent only part of a wider technological and social scenario.[5] For this reason, this book relies on two different approaches that do not oppose, but complement each other: a media archaeological approach that looks at the continuities and at the subtle relationships between

earlier media histories and the contemporary landscape; and a perspective informed by digital media studies that takes into account the technical and social specificities of digital technologies.[6] Digital media is defined as media employing computing technologies that process numerical data in order to provide users with information conveyed through computers screens, telephone screens, radio, movies, and other globally accessible media. Yet, although there is the perception that analog technologies are "old" and digital technologies are "new," many of the essays published here underline their continuous tradition of use as well as their inextricable present relationship.

The supernatural has long been associated with religion and the miraculous. Within the European tradition, the term *supernatural* was first used in the late medieval era to describe events that deviated from ordinary, natural phenomena.[7] The new term was used to refer to a wide range of mystical and religious phenomena such as apparitions, healings, or communications from angels or saints, as well as events that deviated from traditional religious frameworks but were nonetheless non-ordinary, such as ghost sightings or appearances of revenants. Medieval and early modern theologians, philosophers and scientists enabled their systematization of the natural world with the help of mechanical instruments. Telescopes, microscopes, maps, clocks, and the astrolabe helped scholars acquire knowledge about the ordinary world that further separated it from the domain of the supernatural. Yet, ironically, these instruments occasionally acted as conduits for the supernatural. From rumors of clocks that stopped to warn of the death of a loved one to microscopes that revealed the components of the soul, technologies of science and communication were simultaneously instruments of enchantment and disenchantment.[8]

Especially with the introduction of electrical media in the nineteenth century, media technologies have entertained a close and complex relationship with beliefs in the supernatural. Since the publication of seminal works by Jeffrey Sconce and John Durham

Peters, a growing scholarship in media studies has addressed the relationship of media technologies with supernatural beliefs and knowledge.[9] Yet, given the magnitude of the body of literature addressing the role of the supernatural in the development of nineteenth-century and early-twentieth-century media technologies and practices, it is surprising how little efforts have been made to question the connections between digital media and the supernatural. The main way in which this issue has been approached is by comparing the reception within spiritualism and psychical research of "new" media of the past — such as, for instance, telegraphy in the middle nineteenth century — with the reception of todays "new" digital technologies.[10] Less attention, however, has been given to the possibility of interrogating the specific ways through which beliefs in the supernatural interact with and are inserted into the reception of digital media. Focusing on the supernatural as a locus in which particular forms of imagination and modalities of interaction with digital media are constructed, and entering in dialogue with the rising literature on the relationship between religion and digital culture,[11] this volume aims to contribute to filling this gap. If, as many have noted, religion "cannot be analysed outside the forms and practices of mediation that define it,"[12] on the other token, media cannot be analysed outside the forms of belief and rituals that inform and prepare our interaction with them. *Believing in Bits*, in this sense, advances the idea that religious beliefs and practices are inextricably linked to the functioning of digital media.

How we believe in bits

Scholars in media studies have taken up the idea that the present configuration of digital media is informed and made possible also by a system of beliefs. John Durham Peters, for one, recently characterized Google as a "religious medium" which, like a storyteller, provides answers to "the perplexed of cyberspace."[13] From a different perspective, examining the cultural and material configurations that anticipated and made possible the emergence of cloud computing, Tung-Hui Hu argued "the network is primarily the idea that 'everything is connected,' and, as such, is a product of a system of belief. Because reality can never match up to that system of belief, because, in fact, not everything is connected, the network exists primarily as a state of desire."[14]

What does it mean, however, to *believe* in digital media, and how does this relate, if it relates at all, to religious forms and rituals? Any answer to this question should move through the consideration that belief is a complex concept associated with very diverse meanings, connotations, and practices. Within the field of religious studies, for example, belief is often not emphasized as important, while practices suggest religious value. While virtually all ways in which we use, interact with, and perceive digital media may invite some forms of belief and practice, it is necessary to distinguish between different ways through which this happens. Each of these 'beliefs in bits' (to play with the book's title) might appear secular in nature, but nevertheless, as we will see, bear deep implications into how religion is experienced and understood in contemporary societies.

The first category of belief in digital technologies is of a pragmatic nature. Everyday life in modern societies is based on the implicit acceptance that technological artefacts and systems, such as cars, TV sets, or the Internet, function and are generally reliable. Crucially, this implicit trust is not often accompanied by the full understanding of how these technical systems function: one might 'know' that a car will bring them rapidly to her or his office,

without 'knowing' how this happens at a technical level. As scholars such as Anthony Giddens observed, this belief in technical systems can be characterized as a secular faith, and forms part of the broader system of beliefs enabling people to navigate life in contemporary societies.[15]

Such lack of knowledge in technological objects that are omnipresent in our daily life is particularly relevant to digital systems, whose actual functioning might be opaque even to the computer scientists and programmers who built them. This is a problem that is structural to computing technologies and software. While early computers were programmed by intervening directly on the hardware to adapt the machine to different tasks, the division between hardware and software meant that symbolic systems were developed to program computing machines. These systems, called programming languages, feature commands such as "begin," "if… then," "print," as well as arbitrary sequences that are nonetheless intelligible to programmers, allowing them to write code executing complex functions. Such commands, however, correspond to actual operations of the machine only after having been translated multiple times, in lower-level programming languages and finally into machine code, which is the set of instructions in binary numbers executed by the computer. Machine code is such a low level of abstraction that is virtually incomprehensible to the programmer without the translation operated by specific software called compilers, which convert programming language into lower-level languages and machine code.

Digital technologies, as a consequence, require a kind of pragmatic belief that is substantially different from the trust in technical systems to which we usually commit. The opacity of digital media cannot be reduced to the technical skills and knowledge of users: it is embedded in the functioning of computing technologies. This contributes to provide digital technologies with an aura of quasi-magical power that emerges in the use of concepts such as "mind reading" and "magic" to characterize the functioning of computer algorithms. It is also

this opacity that has led entrepreneurs such as Elon Musk and scientists such as Stephen Hawking to launch alarms about the potential dangers of Artificial Intelligence (AI): one of the scenarios they evoked is that humans might not be able to comprehend what is happening within AI systems, failing to notice malfunction and misbehaviors of intelligence machines.[16]

A second category of beliefs in digital technologies has to do with the particular status attributed to digital media in contemporary societies. This is the belief, shared by many, that digital media are qualitatively and structurally different from anything that has happened before. In its most evident form, it corresponds to the rhetoric of the "digital revolution" and to the characterization of digital media as "new."[17] Scholars in media studies have often criticized such ideas, pointing to the fact that the present configurations of digital media encompasses many innovations but also many points of continuity with previous evolution of other technological forms.[18] The distinction between old and new media, in fact, does not take into account that digital media have a quite long history, dating back at least to the emergence of electronic digital computer in the 1940s, and that media labelled as "old," such as books, cinema, and television, are fully participating in digitization processes.[19] This debate notwithstanding, ideas of novelty continue to characterize the ways in which digital technologies are presented to the public: think, for instance, at the way a company such as Apple capitalize on this existing rhetoric to offer the launch of a new device as a revolutionary event, or at the symbolic appropriation of new media by political parties and movement such as the Pirate Parties in Scandinavia and Germany or the 5-Star-Movement in Italy, which helped present these parties as carriers of novelty and change.[20] But also at the level of everyday use and perception, beliefs that digital media are new and revolutionary contribute to shaping our understanding of these technology, as Simone Dotto's chapter discusses through the example of sound recording.

A third category of beliefs in digital technologies is the belief that digital media will irremediably change human societies and cultures, bringing about path-breaking transformations in the political, social, and cultural spheres. Throughout history, technologies have often been presented to the public as triggers of change: think, for instance, at the railway in the nineteenth century or at television in the post-war period, which were characterized as veritable symbols for the coming of a new era.[21] In media and cultural studies, this belief have often been described in terms of technological determinism, i.e. the tendency to represent technology (in this case communication technologies) as the sole or predominant cause for social change.[22] Technological determinism might have originated well before digitalization, but it has been revived in specific ways throughout the last three decades and especially since the emergence of the World Wide Web. Technological determinist narratives are shared by such diverse groups as hackers who posit digital technologies as liberating in both individual and political terms and Silicon Valley corporative managers who embraced the so-called Californian Ideology, committing to enthusiastic beliefs in a technology-driven progress.[23] Overall, they contribute to create the sense that digital technologies are changing humans at an anthropological level.

The fourth and final category of 'beliefs in bits' is the one with the most evident religious implications. It is the belief that digital technologies will change biological life, by enabling the existence of human-machine hybrids, creating artificial life, and defying death. Since the earliest stages in the history of electronic computing and AI in the late 1940s and early 1950s, pioneers of computer science such as Alan Turing and Claude Shannon reflected on questions that are infused with philosophical and existential consequences: is it possible to create a machine that thinks? What are the implications of the fact that machines outperform humans in operations that we consider of an intelligent nature, such as calculating integrals or playing chess?

Many researchers in the field, including Turing and Shannon, professed that the quest for machine intelligence did not have much to do with producing conscience or life. In the "imitation game" proposed by Turing to establish if a machine can think, for instance, he did not define "thinking" in absolute terms, but he proposed instead an empirical experiment (now called the Turing Test) to establish if a machine could *appear* to us as thinking.[24] In Turing's design, a human judge engages in a conversation with an agent through a typewriter (today, most commonly a chatroom), and has to establish if the conversation partner is a computer or a human. As computer programs were developed to conduct the test, deception became a common strategy: it became evident to programmers that there were strategies to exploit the fallibility of judges.[25] Thus the Turing Test was, basically, an exploration of the question if a computer could trick us into thinking that it was intelligent – and thus alive, inasmuch we consider intelligent beings as such. Yet, as shown by Anthony Enns in his chapter, the spiritual ramifications of this question did not escape to Turing himself, and up to the present day it has proved extremely difficult, if not impossible, to separate strictly technical issues from the philosophical, ethical, and even metaphysical questions raised by research into AI, robotics, and cybernetics. Advances in both computer power and, most importantly, in software have recently lead technologists to forecast scenarios such as singularity, a future when machine intelligence will surpass humans and even defy their comprehension, leading to radical transformation not only of computing but of humanity as well.[26] Among the most startling predictions related to this claim is the idea that in the future it might be possible to upload the content of a human mind into a computer, enabling a form of non-biological and yet human life made literally out of bits. Perhaps the most interesting example of this is that the young billionaire Dmitri Ipskov secured the blessing of the current Dalia Lama, Tenzin Gyatso, to bless the entrepreneurs efforts to accomplish this feat by the

year 2045. Potentially, according to them, the next incarnation of the Dalai Lama will be within a non-biological platform.

The place of religion

These beliefs and imaginaries are crucial to our understanding of the relationship between digital media and religion, and are related in many ways to how digital technologies are used and imagined in supernatural terms. For each of them we can identify, as summarized in Table 1, specific ways through which our beliefs in digital technologies connect to the religious sphere.

Table 1. Believing in bits: Four categories of beliefs in digital technologies		
Belief	Secular expressions	Religious expressions
Pragmatic beliefs in the functioning of digital technical systems	Human-machine interactions, interface	Animistic design, magic in technology
Beliefs that digital media are qualitatively and structurally different	Digital revolution, novelty of new media	Religious renaissance triggered by digital media
Beliefs that digital technologies will change humanity	Technological determinism, hacker culture, Californian ideology	New, digital-based religious forms and practices
Beliefs that digital technologies will defy death	Post-humanism, singularity, synthetic genetics	Digital transcendence

Pragmatic beliefs not only allow people to rely on their everyday interactions with digital technologies and systems, but also shape such interactions and the complex of meanings that are associated to them. Social anthropologists such as Armin Appadurai and Alfred Gell have taught us that not only humans, but also artifacts can be regarded as social agents.[27] People often attribute intentions to objects and machines: car owners, for instance, may attribute personality to their cars.[28] With AI systems such as Amazon's Alexa or Apple's Siri, where a computer program is trained to respond with a 'human' voice, it is evident how this tendency to personify technologies has become even more pronounced.[29] This stimulated

designers to take up animism – the belief that all objects, places and creatures possess a spiritual essence – as a framework to explore the alternative models of interaction between humans and digital objects.[30] Contributor Betti Marenko convincingly demonstrates how experiences such as 'animist design' underpins the enchanting and incantatory potential of digital technologies. The experience of having algorithms predict our google searches, interests, and shopping tastes has unsettling effects, and as it becomes more and more part of our common experience, it also produces the sense that we are living in a world permeated by magic. Thus, our "algorithmic imaginary," to follow Taina Bucher's recent proposal to describe in such terms how people experience and make sense of their interactions with algorithms in their everyday life, is shaped not only by technological, cultural, and social patterns but, inescapably, also by religious and spiritual ones.[31]

The beliefs that digital media are qualitatively "new," i.e. they are different from anything that has appeared before in human societies, also has strong ramifications in the realm of religion.[32] In fact, the development of digital media, and particularly of the Web, has awakened in believers of many confessions and faiths the sense that the digital revolution could be a spiritual revolution as well. Religious communities have shared the feeling that the contemporary age would bring about a technology-driven religious renaissance thanks to the possibility of dissemination, participation and engagement guaranteed by the Internet.[33]

It is important to note that, if as discussed above, the rhetoric about the novelty of technology has characterized representations of technology well before the emergence of digital media, also the sense of the religious potential for new technologies is not new to our age: it is sufficient to think, to give just one instance, at the missionary dream to disseminate more widely the spiritual faith that, as James Carey has shown in a now canonical essay for media history, accompanied the evolution of communication technologies such as the telegraph throughout the nineteenth century and early twentieth century.[34] However, the

belief in the novelty of digital technologies and the rhetoric of the digital revolution has

certainly profound implications for the way in which religion has been and is mediated and

experienced in the Web or, as Joshua Mann reveals in his contribution, through digital

technologies such as virtual reality. Interestingly, moreover, the very rhetoric of the digital

revolution has strong religious connotations, as shown for instance by the characterizations of

pioneers as prophets, the tendency to take up millennial and apocalyptic views, or the fact

that the following of digital corporations such as Apple exhibits certain characteristics of a

cult.[35] It is not a coincidence, in this sense, that the Internet has been saluted by some belief

communities, as Paolo Apolito put it, as a celestial sign that promised to become "a powerful

and unique resource for a new reenchantment of the world."[36]

The beliefs that digital technologies will change humanity in an anthropological way,

shaping wide-ranging cultural and social transformations, also bears many religious

connotations. In the religious sphere, it corresponds to veritable changes in the experience

and practice of religion, with the emergence of new religious forms, communities, and rituals

that are enabled and in some cases even embedded within digital media. Examples of this

include the online Tulpa communities, discussed by Christopher Laursen, the dispersed

groups of UFO collectives that frame their participation around digital resources and

websites, on which Rafael Antunes Almeida's chapter focuses, and even the fakelore or fake

religion that make the subject of Ken Chitwood's analysis.

It is however the fourth category of beliefs, the belief that digital technologies will

change biological life and even defy death, that bears more complex and wide-ranging

implications for the study and the understanding of the relationship between religion and

digital media. Computer scientist such as Hans Moravec combined their practical

achievements in AI and robotics with predictions about the future of computers as a

"postbiological" or even "supernatural" era.[37] Similarly, futurist Ray Kurzweil believe that

digital immortality will be an imminent reality.[38] This would at first appear to defy

conventionally religious notions of immortality. Yet, the history of religions suggest that their

understanding of immortality is not new but ancient. Additionally, ancient forms of this belief

were sophisticated in their analysis of the potential pitfalls and hazards of these

developments. Look no further than the Greek myth of Eos and Tithinos. Tithonos, a mortal,

fell in love with the immortal goddess Eos. Through her connections, she granted Tithonos

immortality, but forgot to give him eternal youth, which she had. He eventually became so

old that she discarded him. Thus, the enthusiasm of contemporary immortality can and should

be tempered by historical mythical and religious accounts.

Stranger than Fiction

One of the more interesting themes of the *Star Wars* (2018) movie *Solo*, which provides the backstory for the character Han Solo and other characters that become major players throughout the franchise, is the relationship between Han's friend Lando and his Artificial Intelligence (AI) robot L3-37. In one scene, the L3 confides to the female protagonist Keira that she (the AI) has a relationship with Lando, who is the captain of the space-craft the Millennial Falcon. L3 is his first officer. Kiera looks suspicious and asks "How does that work?" L3 responds, "It works." This relationship, characterized in the movie as deeply loving, respectful, and perhaps even sexual, is far different from the relationship that the astronaut David Bowman has with the computer HAL in the classic movie *2001: A Space Odyssey* (1968). In *2001*, HAL works for a covert government project that must extinguish any obstacle to its ultimate goal, which is to travel to the planet Jupiter. These obstacles unfortunately include Bowman's colleagues, and Bowman himself, had he not outwitted the AI and saved his own life. As different as each relationship is expressed in each movie, the AI is still characterized as sentient and fully engaged in relationship to its human interlocutors. The potential sexual aspect of Lando's relationship with his female voiced AI, in this sense, provides a powerful challenge to assumed human-digital boundaries and binaries.

The contours of these engagements have become the topic for scholars of media studies as well as humanist studies of digital technologies. Far from being a matter of science fiction, contemporary experiences with digital technologies including social bots, robots, and personal assistants such as Amazon's Alexa and Apple's Siri stretch not just the boundaries between humans and machine, but also the systems of beliefs and practices that foreground such boundaries. As Sheila Jasonoff and Sang-Hyun Kim argue in their ground breaking anthology *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of*

Power, movies like *Solo* or *2001* are not mere fantasies of how technology and humans interact or how humans use technologies: they represent and inform how the techno-human industrial complex operate in specific, material ways.[39]

These new frameworks, interestingly, apply equally to new religious forms and systems of belief. With the advent of religions inspired by science fiction and movies, or fiction-based religions, definitions of religion have been transformed. Historical religious traditions, such as Hinduism or Judaism, bring to mind ideas such as Gods, goddesses, rituals, books, and values, among other things. The significant anchor that authorizes these concepts is generally an ultimate reality like a God, or an ultimate concept like Braham. Practitioners consider these to be incontrovertible realities. But what about religions that take fiction and movies to be the authorizing narratives of their practices, rituals, and beliefs?[40] And, is it a coincidence that these new religious movements occur within a digital space?

In the academic study of religion there are many definitions of religion, spanning from a belief in spiritual, invisible realities and beings, to the belief that an ultimate force or organizing principle governs all things. Conventional definitions of religion rely on the perceived reality of founding religious figures, such as Jesus or the Buddha, or the veracity of concepts such as karma or Sunyata (nothingness in Zen Buddhism). Yet, as scholars have pointed out, fiction and digital-based religions suggest that these definitions are ripe for change and revision. The chapters in this volume offer specific examples of this change. The assumption of a rupture with tradition, and the appearance of brand new media, is also found within the language of technology, which dates back to the Greek's automata, which were human-machines. There is a continuous tradition of religious language and frameworks applied to technological development. Surprisingly, this language and history has not abated, but continues and appears to be increasing. Facebook and Amazon can read your mind, for example (so it is said), and the internet is either the Best of the Apocalypse or the potential

new body of the next Dalai Lama. This is reflected in the movie Solo, where L3 dies the

heroic death of a martyr but then her memory database is integrated into the Millennial

Falcon. She is now like HAL, but a version that saves humans, and does not kill them.

Endnotes

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[2] Joseph Weizenbaum, *Computer Power and Human Reason* (New York: Freeman, 1976). See also Simone Natale, 'If Software Is Narrative: Joseph Weizenbaum, Artificial Intelligence and the Biographies of ELIZA', *New Media and Society*, published online before print (2018): pp. 1-17, doi: 10.1177/1461444818804980.

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[4] Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet* (New York: Weidenfeld & Nicolson, 1995).

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[7] C.S. Watkins, *History and the Supernatural in Medieval England* (Cambridge: Cambridge University Press, 2007).

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[9] Sconce claimed that nineteenth-century spiritualism originally developed in connection to the telegraph, to which spiritualists referred in order to explain their communication with the spiritual world. In a similar vein, Peters noted the coincidence of the early progress of telegraphy and spiritualism, arguing that, behind the obsession with occultism and psychical research for the establishment of a communication with the unknown, laid broader cultural concerns about communicational relations. Jeffrey Sconce, *Haunted Media: Electronic Presence from Telegraphy to Television* (Durham: Duke University Press, 2000); John Durham Peters, *Speaking into the Air: A History of the Idea of Communication* (Chicago, Ill.: University of Chicago Press, 1999). See also, among others, Richard J. Noakes, 'Telegraphy Is an Occult Art: Cromwell Fleetwood Varley and the Diffusion of Electricity to the Other World', *The British Journal for the History of Science* 32, no. 4 (1999): pp. 421–459; Jeremy Stolow, 'Salvation by Electricity', in *Religion: Beyond a Concept. The Future of the Religious Past, Vol. I*, edited by Hent De Vries (New York: Fordham University Press, 2008), pp. 668–686; Anthony Enns 'Psychic Radio: Sound Technologies, Ether Bodies and Spiritual Vibrations', *The Senses and Society* 3, no. 2 (2008): pp. 137–152; Bernard Dionysius Geoghegan, 'Mind the Gap: Spiritualism and the Infrastructural Uncanny', *Critical Inquiry* 42, no. 6 (2016): pp. 25–31.

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[11] See, among many others, Heidi Campbell, *When Religion Meets New Media* (London: Routledge, 2010); Heidi Campbell (ed.) *Digital Religion: Understanding Religious Practice in New Media Worlds* (London: Routledge, 2013); Rachel Wagner, *Godwired: Religion, Ritual and Virtual Reality* (London: Routledge, 2011).

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[13] John Durham Peters, *The Marvelous Cloud: Towards a Philosophy of Elemental Media* (Chicago: University of Chicago Press, 2015), p. 333.

[14] Tung-Hui Hu, *A Prehistory of the Cloud* (Cambridge, Mass.: MIT Press), p. 10.

[15] See Anthony Giddens, *The Consequences of Modernity* (Cambridge, UK: Polity Press, 1990), pp. 27-28.

[16] Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford: Oxford University Press, 2014).

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[19] Natale, 'There Are No Old Media'.

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[26] Ray Kurzweil, *The Singularity Is Near: When Humans Transcend Biology* (London: Penguin, 2005). Jaron Lanier compares singularity with the belief in Rapture and the apocalypse in the American evangelical culture, noting that they share not only the belief in a dramatic transformation that will happen far in the future, but also the fact that they "can never be verified by the living." Jaron Lanier, *You Are Not a Gadget* (London: Penguin, 2011), p. 26.

[27] Arjun Appadurai, *The Social Life of Things: Commodities in Cultural Perspective* (Cambridge: Cambridge University Press, 1986); Alfred Gell, *Art and Agency: An Anthropological Theory* (Oxford: Clarendon Press, 1998).

[28] Byron Reeves and Clifford Ivar Nass, *The Media Equation: How People Treat Computers, Television, and New Media like Real People and Places* (Stanford, Calif.: CSLI Publications, 1996).

[29] Andrea L. Guzman, 'Making AI safe for humans: A conversation with Siri', in *Socialbots and their friends: Digital media and the automation of sociality*, edited by Robert W. Gehl and Maria Bakardjieva (London: Routledge, 2017).

[30] Betti Marenko, 'Neo-animism and design: A new paradigm in object theory', *Design and Culture* 6, no. 2 (2014): pp. 219-241.

[31] Taina Bucher, 'The Algorithmic Imaginary: Exploring the Ordinary Affects of Facebook Algorithms', *Information, Communication & Socie*ty 20, no. 1 (2016): pp. 30-44.

[32] Reflecting on the relationship between digital media and religion, Gregory Price Grieve points to the existence of a "technological ideology" that reflects the belief and logic system which supports a given technology. He argues, in this sense, that "the dominant American ideology sees digital media as a positive and revolutionary technological development through which all the world's problems can be creatively and innovatively solved." Gregory

Price Grieve, 'Religion', in *Digital Religion: Understanding Religious Practice in New Media Worlds*, edited by Heidi A. Campbell (London: Routledge, 2013), pp. 104-118.

[33] See, among others, Campbell, *Digital Religion*; Paolo Apolito, *Internet and the Madonna: Religious Visionary Experience on the Web* (Chicago: University of Chivago Press, 2005).

[34] James W. Carey, *Communication as Culture: Essays on Media and Society* (Boston: Unwin Hyman, 1989).

[35] Stephen O'Leary, 'Utopian and Dystopian Possibilities of Networked Religion in the New Millennium', in *Religion and Cyberspace*, edited by Morten T. Höjsgaard, Margit Warburg, (London: Routledge, 2005), pp. 38-49; Menahem Blondheim and Hananel Rosenberg, 'Media Theology: New Communication Technologies as Religious Constructs, Metaphors, and Experiences', *New Media & Society* 19, no. 1 (2017): pp. 43-51; Belk, Russell W., and Gülnur Tumbat, 'The Cult of Macintosh', *Consumption Markets & Culture* 8, no. 3 (2006), pp. 205–17.

[36] Apolito, *Internet and the Madonna*, p. 5.

[37] Hans Moravec, *Mind children* (Cambridge: Cambridge University Press, 1988), p. 1.

[38] Kurzweil, *The Singularity Is Near*.

[39] Sheila Jasonoff and Sang Hyun Kim (eds.), *Dreamscapes of Modernity: Social Technical Imaginaries and the Fabrication of Power* (Chicago: University of Chicago Press, 2015).

[40] Markus Altena Davidson, 'Fiction-Based Religions: Conceptualizing a New Category Against History-Based Religion and Fandom', *Culture and Religion: An Interdisciplinary Journal* 14, no. 4 (2013): pp. 378-395.