# Lessons from Venice:
# Authenticity, Emotions, and ICTs

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**ABSTRACT**

Since the emergence of modern artificial intelligence research in the 1950s, scholars have striven to model the ways in which humans think, speak, move, and emote. A presumed measure of success is the degree to which computer-driven programs or mechanical constructs can reproduce (that is, simulate) behaviors of their human counterparts. With the development of robotic pets, comparable measures have been considered.  The goal of simulation is based upon an assumption regarding the extent to which humans seek authenticity, more generally, in the representations they encounter. By "representation" we mean everything from an audio recording of a musical performance, to an architectural reproduction of an original edifice, to a sculpture depicting a person, to a robotic pet. This essay argues that authenticity in representation is not always a desired goal. As a result, as we think about the extent to which the robots of today (and tomorrow) are capable of expressing emotion and other behaviors that are judged to be life-like, it behooves us to consider the degree to which users of robots are actually seeking verisimilitude.

**KEY WORDS:** artificial intelligence, authenticity, emotion, ICTs, representation, simulation

## OPENING PRELUDE: SOUNDS AND SIGHTS OF VENICE

Chiesa di San Vidal stands in Venice, near the Accademia Bridge over the Grand Canal. Though no longer a functioning church, it is home to performances by a talented and vivacious chamber orchestra, Interpreti Veneziani, which specializes in playing music by Baroque composers. The group has recorded a number of CDs, making it possible to enjoy their music anywhere in the world. Yet however good the quality of the recordings, attending a live concert is a radically different aesthetic experience: The dynamics of the interaction between members of the group, their nuanced gestures, and the emotion on their faces render these performances "authentic" in a way that cannot be captured on an audio soundtrack.

The issue of authenticity also comes into play with a better-known Venice landmark: the Campanile di San Marco, the 98.6 meter bell tower that stands adjacent to the Basilica di San Marco. The original Campanile, completed by 1514, collapsed in 1902, but was faithfully rebuilt in 1912. Authentic? Not literally, but the very best that could be done, even incorporating pieces from the original structure. Far less faithful is the version of the Campanile that is part of the Venetian Hotel in Las Vegas, which opened in 1999. A bit like the buildings in the national pavilions at Walt Disney World, the Venetian Hotel complex (including the Campanile) is more intended to give the flavor of Venice than to offer verisimilitude. Judging from the commercial success of the hotel, it would appear that guests are not put off by the lack of authenticity.

What do issues of authenticity in Venetian music or architecture have to do with information and communication technologies (ICTs)? The answer is personal. A Spring 2011 visit to Venice inspired me to think about issues of authenticity in preparation for the Summer 2011 workshop on Social Robots and Emotions, hosted by Franklin College of Switzerland.

The central question of this essay is: How important is authenticity when we are using ICTs, particularly as social robots? We will argue that just as in the Venetian examples – as well as in a host of other auditory, linguistic, or visual contexts – strict authenticity is often less relevant than filling particular aesthetic or interactive functions.

## THE QUESTION OF AUTHENTICITY

To what extent does an artifact such as a musical recording, a building, a piece of art, or an artificial intelligence program constitute a "genuine" rendering of an original? This question contains two parts. The first concerns the extent to which the rendering is faithful. However, the second involves the degree to which the beholder (or the user) takes authenticity as a desirable goal.

Both parts of this question have long and complex histories. In the world of art, for example, the desire for authentic renderings has been dominant in some societies, and in some historical periods, but not in others. Or consider authenticity in lay use of digital media. In contemporary times, with the growth of blogs and citizen journalism, there are those whose writing seems to imply that representation of the "truth" (e.g., in news accounts or commentaries) can itself be relative (Manjoo, 2008), leading the comedian Stephen Colbert to introduce the notion of "truthiness," meaning "the quality of preferring concepts or facts one wishes to be true, rather than concepts or facts known to be true" (American Dialect Society, 2006).

There is a vast literature on authenticity. Among the best-known studies are Walter Benjamin's "The Work of Art in the Age of Mechanical Reproduction" (Benjamin, 1968) and Susan Sontag's *On Photography* (1977) and *Regarding the Pain of Others* (2003). But there are hundreds of others, including philosophical discussions (e.g., Adorno, 1973), explorations of authenticity in the political arena (e.g., Murtola & Fleming, 2011), reflections on relevant moral issues (e.g., Trilling, 1972), books on authority and consumerism (e.g., Gilmore & Pine, 2007), and examinations of

cultural authenticity (e.g., Orvell, 1989), including in the tourist industry (e.g., Wang, 1999). This essay does not attempt to survey the field. Rather, it focuses on issues of authenticity in the domains of artificial intelligence and ICTs, leading to consideration of the role of authenticity in using social robots.

**Authenticity and Artificial Intelligence**

Since 1956, when the term "artificial intelligence" was coined at a conference held at Dartmouth College, scientists and lay people alike have wrestled with the question of what it would mean for a software program (or a mechanical device operated by such a program) to have intellectual capacities equivalent to those of a human (e.g., McCorduck, 2004). A few years earlier, faced with the question of whether computers could think, Alan Turing (1950) had proposed a test: Could a machine engage in conversation with a human such that the dialogue was indistinguishable from conversation between humans? In 1990, Hugh Loebner established an annual competition in which contestants are invited to test their programs against a panel of judges.[1] Interestingly, there is also a prize for the human contestant best able to convince the judges of his or her humanness (Christian, 2011).

Looking more broadly at developments in the field of artificial intelligence, we have witnessed profound advances in what programs (and machines running those programs) can do. Natural language processing programs now broker millions (if not billions) of telephone inquires a day. Google has prototyped a car that can drive itself (Markoff, 2010). And onscreen avatars are being engineered to express emotions (Ortiz et al., 2009; Paiva et al., 2007).

Traditionally, a fundamental question in AI has been whether the artifacts created are designed to emulate or simulate human behavior: Has the goal been to perform cognitive or motor operations in the same way that humans do (emulation) or, instead, to yield the same results as found in human action, regardless of the path followed to get there (simulation, which is a comparatively simpler task)? Our issue, however, is a different one: Are users of the fruits of AI actually looking for replicas of human behavior (however achieved)?

The theme of the workshop that generated papers in this volume is the expression of emotion by social robots – AI-driven machines that are explicitly designed to interact with people (in contrast, for example, to industrial robots). Therefore, our ultimate question here is whether human users are looking for their social robots to express emotion that closely simulates that of humans (or, in the case of robotic pets, animals).

**Authenticity and ICTs**

Over the past twenty years, interest in these issues has expanded from the computer science-based discipline of AI to the growing field of new media studies, a syncretic conglomerate of research generated by sociologists, communication specialists, and linguists – to name but some of the contributing disciplines. The term ICTs is now widely used to refer to devices (typically computers and mobile phones, but potentially avatars on screens or robotic pets whose communicative powers may be non-verbal) that convey information or enable interaction between two or more entities. Conventionally, interlocutors using ICTs are humans (e.g., two friends exchanging text messages). However, as we have just implied from our examples, one or more of the entities might be a computer program (e.g., a natural language processing program) or a program-driven machine.

Underlying this essay are four interrelated questions:
- How does body-to-body (Fortunati, 2005) expression of emotion compare with that produced by mediated emotional expression (e.g., via musical recordings, robots, online avatars, or text messages)?

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[1] See http://www.loebner.net/Prizef/loebner-prize.html

- How similar are issues concerning authenticity using ICTs to issues involving other realms of communication (e.g., face-to-face conversations) or visual representation (e.g., paintings, the Las Vegas Venetian Hotel)?
- How adaptive are we in dealing with representational limitations?
- To what extent does authenticity in ICTs matter?

We begin by looking at authenticity issues in the domains of communication and of visual representation. From there, we move to considering the implications of practices in these domains for understanding how to think about emotion and authenticity when using ICTs.

## AUTHENTICITY ISSUES

### Authenticity in Communication

Ask a beginning student of linguistics to define what a language is, and you will likely hear it is a system of communication. True, but we also know that people are not always straightforward about communicating with one another. We speak of someone maintaining a poker face or a stiff upper lip. What's more, people sometimes lie.

In the case of virtual communication via an ICT, authenticity can also be an issue. On Facebook, for example, American teenagers and young adults commonly "stage" their profiles with photographs or text that may not depict the individual you know from day-to-day encounters. In the words of one participant in a study I conducted on social networking, her Facebook page was "me on my best day" (Baron, 2008, see Chapter 5). Similarly, text messages sent via mobile phone may be missing in face-to-face authenticity, and not simply because they lack facial and vocal cues. In cross-cultural research I conducted on university students' use of mobile phones, one Japanese student complained that "communication through *keitai* mail [the Japanese equivalent of texting] [can] trick people's minds as if they were engaged in real communication" (Baron, 2011). For this student, "real" communication implied shared physical space and devotion of one's full attention to the interlocutor.

Some studies of electronically-mediated communication (EMC) have concluded that written EMC cannot substitute for face-to-face interaction. Norman Nie, for example, has asserted that while "e-mail is a way to stay in touch, … you can't share a coffee or a beer with someone … or give them a hug" (Nie & Erbring, 2000, p. 19). At the same time, though, virtual communication often becomes acceptable – that is, authenticity is not a necessary desideratum – when there is no face-to-face alternative. A relevant example is soldiers in distant lands Skyping their families back home.

In thinking about levels of authenticity in communication – and the extent to which users seek such authenticity – we need to keep in mind that the domestication process for any form of non-face-to-face communication tends to be gradual. Though the telegraph was first introduced in 1844, it would take several decades before the general public felt at ease sharing personal information with the telegraphers who needed to encode and decode messages (Marvin, 1988, p. 25). In the case of landline telephones, there was also a long lead time before arbiters of etiquette deemed it appropriate to engage in certain types of communication (such as issuing an invitation) on the telephone rather than in writing (Hall, 1914, pp. 53-54).

Because email, IM, and texting are still relatively new forms of communication, it may be too soon to determine what social conventions – including requirements for authenticity – we demand of them. Early arguments regarding the need for emoticons when sending email are a case in point (Baron, 2009). When email began to proliferate in the 1980s – first in academic research settings and then among the larger public – it was commonly argued that because the medium lacked the vocal and visual cues of face-to-face communication, email messages were highly prone to being

misunderstood. Therefore, it was assumed necessary to add emoticons to clarify meaning. However, as email (followed by other written forms of ECM such as IM, texting, blogs, and now Twitter) became increasingly domesticated, users began realizing that bare text could stand on its own.

In fact, there is a potpourri of evidence that too much authenticity in communication can be unwelcome. Movie theatres discovered that patrons were uninterested in having their olfactory senses stimulated by adding Smell-O-Vision to accompany the image onscreen.[2] Long before the development of ICTs, people often chose to write a letter rather than hold a face-to-face or telephone conversation, even if the interlocutors had the physical opportunity to communicate in one of these ways. Their reasons ran the gamut from wanting time to plan what they were going to say, to coping with shyness, to avoiding confrontation. While media platforms such as Skype make it possible to hear and even see one's interlocutor, users commonly choose to reduce the level of communication authenticity by ignoring one or more of these channels. I may be willing to have you hear my voice, but not see me (since I'm in my night clothes). Or I may opt to use only written communication, since I intentionally go by the initials of my first and middle names (e.g., J.K.) and don't want to reveal my gender through speaking.

**Authenticity in Visual Representation**
When talking about authenticity in visual representation, the case of art naturally comes to mind. In thinking about art prior to the end of the nineteenth and early twentieth centuries (with the coming of such movements as impressionism, cubism, and surrealism), it's understandable to suppose that the artist's goal was accurate rendition of the subject being depicted. While such a goal might be unreachable if the subject were, say, a mythological figure or an angel, it was presumably attainable for historical personages, especially who were contemporaries of the artist.

But in fact literal rendition has not always been the artist's aim. Consider sculptures depicting Alexander the Great. What did Alexander actually look like? We don't know for sure from the statuary, since fifth and fourth century BC Greek (and later Hellenistic) art tended to idealize representations of important figures – in Alexander's case, depicting him in part as a god (Dunstan, 2011, p. 131). Or take Rembrandt's "The Company of Frans Banning Cocq and Willem van Ruytenburch," commonly known as "The Night Watch." Rembrandt had been commissioned to paint the members of a company of civic militia guards. However, upon seeing the finished production, the group refused to pay because many of their faces couldn't be seen clearly. Rembrandt was perfectly capable of rendering faces with photographic accuracy. But such was not his personal aim in doing the painting.

In fact, photography itself is an excellent case in point. With the development of photography by the mid-nineteenth century, the art world (at least in the west) puzzled over what the role of painting would now be, since a photograph could transparently render authentic images – or so it was thought. Yet as any contemporary photographer knows, a photograph is a malleable representation. In creating an image, the photographer can select from a range of apertures and shutter speeds, not to mention time of day and angle at which the subject is captured. In the production phase, images can be brightened or softened, colors changed, and real-life blemishes magically removed. Why do we retouch photographs? Largely for the same reason that college students stage Facebook pages to present themselves "on their best day." That is, we manipulate images to make them look the way we wish to appear to others, and the resulting images are not always "authentic."

Beyond the realm of art, we can think about accuracy of visual representation in the world of robots and computers more generally. Consider three examples.

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[2] http://www.wired.com/table_of_malcontents/2006/12/a_brief_history/

The first comes from Sherry Turkle, whose recent work examines attitudes regarding our relationship with real, animate objects as opposed to their mechanical representations. In November 2005, Turkle took her daughter Rebecca, then aged 14, to an exhibit on Charles Darwin at the American Museum of Natural History in New York. Two giant tortoises had been brought from the Galapagos Islands, where Darwin had done some of his groundbreaking research contributing to his work on evolution. Turkle writes:

> One tortoise was hidden from view; the other rested in its cage, utterly still. Rebecca inspected the visible tortoise thoughtfully for a while and then said matter-of-factly, "They could have used a robot." … She said she thought it was a shame to bring a turtle all this way … when it was just going to sit there in the museum, doing nothing. Rebecca was both concerned for the imprisoned turtle and unmoved by its authenticity. (Turkle, 2011, p. 3)

Would it have been preferable for the Museum to have used robotic replacements and saved the actual tortoises the long journey? There may be a generational divide in rendering judgment here. Museums (and exhibit curators) are dedicated to sharing with the public, wherever possible, genuine artifacts. By contrast, younger museum-goers have been raised on animatronics and computer games, where authenticity is typically less valued than the quality of an adventure.

The second example is Paro, a robotic baby harp seal.[3] Designed in Japan, Paro was first exhibited to the public in 2001 and became commercially available in 2004. Outfitted with sensors for touch, light, sound, temperature, and posture, it was created for therapeutic use in hospitals and extended-care facilities. According to the manufacturer, Paro can reduce patient stress and improve the socialization of patients with each other and with caregivers.

The idea of using pets therapeutically is hardly new. Cats and dogs have played this role for centuries (e.g., for people who live alone), and have been strategically introduced into nursing homes and centers for senior citizens. As for Paro, it's hardly feasible to use a real-life baby harp seal in this way.

Does Paro perform as it's designed to? Clinical evidence suggests it does (Wada et al., 2008). To these reports I add my own. In May 2005, I was fortunate to attend the Aichi Province (Japan) international Expo, at which Paro was on display. Petting Paro, and watching it respond by changing its body orientation and facial expression, I immediately bonded. In fact, my family had to pull me away so the next person in line could get a turn. Did I look for authenticity in Paro? Hardly. A real baby seal would not have been nearly as soft to the touch, or nearly as socially responsive.

The last example is computer avatars, specifically those created in Second Life. Designed by Linden Labs and opened to the public in 2003, Second Life can be thought of as a cross between a massive online role-playing game and an online digital world. The platform allows individuals to craft their own avatars, which can then interact with other avatars in virtual space. Users decide what appearance their avatars assume and then how those avatars move about. In many cases, users create essentially caricatures of their "real" selves (think of renditions of public figures appearing in political cartoons). Other times, users endow their avatars with wished-for characteristics (e.g., changed physical endowments, hair color, age, or gender). Some of those changes can even prove medically therapeutic. For example, people with motor disabilities now create avatars that can walk, dance, and even fly. There is evidence that fashioning such imagined selves can prove socially and psychologically beneficial (Laouris, 2009). Authentic? No. But that's the whole point.

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[3] See http://www.parorobots.com

## WHEN DOES AUTHENTICITY MATTER?

A central theme emerging from our discussion of authenticity in representation is that our perceived need for authenticity fluctuates. Variables may include technological possibility and historical attitudes, along with cultural practices and personal preference.

Consider the primitive graphics that were available on the Apple II (back in the late 1970s) and compare them with the stunning graphics on Apple's MacBook Pro "retina screen." The two technologies seem eons apart. Yet thirty-some years ago, excited Apple II users took enormous pleasure in playing games in which the characters were essentially drawn with Lego-like pixels. User demands have shifted with technological development. But it's important to remember that users can be happily content with quite inauthentic representation when that's what is available.

Availability is not the only variable shaping attitudes towards authenticity. Compare Leonardo da Vinci's "Last Supper," which is highly "realistic," with Salvador Dali's painting of the same name – which is not. Is da Vinci's work more "authentic"? Since neither artist was present at the (presumed) historical event, some degree of artistic license is to be expected regardless. But more to the point is that over 450 years separate the two paintings. Fifteenth and twentieth century artists (and audiences) had very different experiences and sensibilities. If one measure of artistic success is the impact a work has on a viewer, and verisimilitude may be less valued in the modern world than in the Renaissance, we cannot assume that representational authenticity is a universal goal.

Cultural and individual preferences can also play a role in shaping attitudes towards authenticity. Think about approaches to the kind of food we grow. The United States and Europe have adopted different stances regarding food they are willing to cultivate, sell, and eat. Where the US government has supported genetically-modified foods, much of Europe has refused to accept such "inauthentic" produce. Or go back to those Apple II graphics. While many enthusiasts took the crudeness of the images in their stride, others who were equally infatuated with computers complained that manufacturers had to do better.

### Humans versus Machines

Let us bring the discussion back now to the theme of this volume: social robots. As technological constructs such as robots and avatars are progressively successful at simulating at least some characteristics of human beings (or their pet counterparts), we need to ask how precise – how authentic – we want that simulation to be. Going hand in glove with that question is another: Are there traits that will continue to separate humans from machines, no matter how much authenticity we might desire?

Consider IBM's computer program named Watson, built to compete against human contestants on the American television quiz show "Jeopardy" (Baker, 2011). In the Spring of 2011, Watson took on the two top winners in Jeopardy's history. Watson won. Did we care that Watson "spoke" through a synthesized voice and was visually represented by an animated globe-like avatar? Did we care that Watson expressed no emotions? Or did we only care that Watson bested his human competitors? Judging from the press surrounding the event, the only thing that mattered was winning.

There has been growing discussion in recent years over whether the Turing Test will ever be passed by a computer (that is, passing for a human in conversation). In a review of Brian Christian's book *The Most Human Human* (2011) in which Christian chronicles his attempt to convince judges in the annual Loebner competition that he is indeed human, Adam Gopnik wrote:

> how competitors fare in the Turing tests is more about the style of the response than about
> the substance. Human intelligence expressed in sentences doesn't have only attributes and

attainments; it has affect. Our stance, our emotional tone, is a surer sign that it's us back there than the ability to answer skill-testing questions. We interrupt, infer, guess, exclaim, ignore. And, at a deeper level, we express a "meta-attitude" about what we're saying and doing even as we say and do it. (Gopnik, 2011, p. 72)

Gopnik continued:

> Empathy and sympathy, jokes and wordplay, are as necessary to intelligence as pure reason: [a] poker-playing program breaks down because it can't put itself in the mind of the guy across the table. (p. 72)

Christian understood the need to "humanize" his performance at the Loebner competition through just such linguistic subtleties as empathy and wordplay. Over time, computers may or may not be able to achieve these linguistic talents. What is equally unclear is whether we are even looking for such linguistic nuance from our machines.

## Relinquishing Demands for Authenticity

Thinking about the evolution of modern communication technologies over the past half-century, we can identify a growing list of circumstances in which we have been willing to relinquish a desire for authenticity in exchange for efficiency. Start with telephone calls to service providers such as doctors' offices or insurance companies. Despite an amount of personal grumbling, most of us have come to accept the phone trees and voice recognition systems that "answer" our calls in lieu of a live human being. Or think about purchasing airline tickets. Gone are the days (for most of us) when we casually call up an airline to book a ticket. Now, we dutifully go online, either to scope out the best price or to avoid the added fee for talking with a human agent.

In the realm of visual representation, we have made similar adjustments with regard to authenticity. For many official transactions, a scanned (or faxed) signature rather than an original is now deemed legally acceptable. In the book (and newspaper and magazine) world, online digital editions are rapidly gaining over printed versions of text. While the future of digital versus print publication remains uncertain, we are seeing traditional readers who cherish books making their peace with, even embracing, Kindles, Nooks, and iPads because of convenience and pricing advantages.

Now add in the social dimension: Paro is selling, as are other robotic pets. People are, in growing numbers, willing to lavish their affections on mechanical pets that they know aren't "real."

## FINALE: RETURNING TO VENICE

Some situations call for more authenticity than others. As a final example, we return to Venice, this time to the famous horses that adorn Basilica di San Marco.

During the Fourth Crusade, a set of four bronze horses – part of a Greco-Roman triumphal *quadriga* (a sculpture of a chariot drawn by four horses abreast) – was looted from the Hippodrome in Constantinople and taken to Venice in 1204. Originally housed in the Arsenale, the horses were moved to the outside of the Basilica about fifty years later, where they proudly stood over the central façade for the next 700 years. However, in the 1980s, to protect the originals from weather and pollution, the originals were moved inside and replaced with replicas. The originals are now part of a Basilica museum.

While the originals are exquisite, the replicas are excellent facsimiles. And we probably all agree that the replacement is both esthetically and practically satisfactory.

Just as with the horses of San Marco, we need to acknowledge that authenticity in communication isn't always a sine qua non for such communication to be successful. What is more, criteria for "success" are themselves not absolute. Before we rush to judgment over avatars whose emotions aren't "real" enough or the possibility – or impossibility – of sharing a beer (albeit virtually) via a mediated technology, we need to figure out what emotional authenticity we are actually seeking from our ICTs.

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