



***On Spillikin – A Love Story:* Issues around the Humanoid Robot as a Social Actor on Stage**

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Received 4 June 2017; accepted 26 September 2017; published 21 November 2017.

Abstract

The inclusion of media technology in theatrical plays (Saltz, 2013) follows a contingent fascination and entanglement between human actors, technology and automata (Reilly, 2011) on stage. The contemporary play *Spillikin – A Love Story* places a new digital ‘actor’ in this debate: the humanoid robot as a socially interactive agent (Breazeal, 2002; Fong, Nourbakhsh, & Dautenhahn, 2003) and caring companion. This paper discusses the exhibition of sociability through the robot’s humanlike gestures and its ability to decipher human gestures on stage. The aim is to point to the ethical consequences for the audience concerning the robot’s implied autonomy to interact socially.

Keywords: digital media; ethics in science and technology gestures; humanoid and social robots; performance studies; social interaction; tracking technology.

***On Spillikin – A Love Story,* or on the Issues around Technology Performing Sociability**

The relationship illustrated in the play *Spillikin – A Love Story*¹ critically addresses the contemporary debate on the use of technology in elderly care (e.g., Bunting, 2016) and points to the difficult question of whether a robot can be a companion for the elderly or people with dementia. It is challenging to fully predict how humanoid technology is about to change our societies and specifically, elderly care. Therefore, it is admirable that the dramatic context is risking critical engagement and debate.² According to the

¹ The play was attended by the author in early February 2017 at the Theatre Royal, Plymouth.

² See Reilly (2011) for a history on early automata on stage.

artistic production company, Pipeline Theatre (2015b) the engineering company, Engineered Arts (2017), and the reviews on the play (Pipeline Theatre, 2015a), the dramatic focus is on the exhibition of interaction and sociability³ from Spillikin, the humanoid,⁴ towards Sally, the human suffering from Alzheimer's. The relationship discussed here does not only look at the technological issues behind the social interaction on-stage, but refers to the ethical dimension of their application off-stage.

The play develops around the relationship between Sally, a woman in her 60s suffering from Alzheimer's disease, and a humanoid robot named Spillikin⁵ who assists her throughout the play. Designed and updated by Raymond, Sally's recently deceased husband, whose nickname was Spillikin, the humanoid is supposed to comfort and assist her by drip-feeding her clusters of the memories she is about to lose. The humanoid is a fusion between a SociBot head consisting of an adaptive, digital 3D screen as a face, and a robust, mechanically stiff RoboThespian body (Engineered Arts, 2017) that barely moves throughout the play.

The play does well in unpacking the challenges of recreating 'autobiographical memory' through technology, considering it develops "during the lifetime of a human being and is socially constructed through interaction with others." (Breazeal, 2002, p. 238). Multiple scenes amplify the realization that memory is more than data and is instead attached to human interaction and shared experience; for instance, when Sally asks to hold Spillikin's hand when he recalls a memory, or when her increasing mental confusion makes Spillikin's comfort become pointless. These scenes not only illustrate the problematic concept of technology's role in memorizing and dealing with diseases such as Alzheimer's, but they also thoughtfully bring up questions on what it means to be patient with someone who is losing or has lost their memory and sense of the present or self. What is woven into the reflective dialogues is that comfort, as much as memory, has its limits, especially when one party is drifting into mental confusion or aggression and losing their ability to interact or to remember who they are.

On the level of technical implementation, the makers of Spillikin, Engineered Arts (2017), claim that "the charm of Socibot lies in its sociable qualities [and to the] ability to detect faces, features, emotions, speech and gestures . . . the eyes follow you around the room; the expression changes to reflect its mood (or yours!)." This implies that Spillikin should be able to read faces and gestures expressed and therefore

³ Sociability is "the quality or state of being sociable; also: the act or an instance of being sociable." (see Sociability, n.d.)

⁴ Short for "humanoid robot."

⁵ This paper is not addressing robotics in general, but unpacks the anthropomorphizing of humanoid robots (Duffy, 2011) and the use of strategies to attach social or emotional traits to their exhibited movements, or to their gestures (Breazeal 2002; Fong et. al. 2003).

act autonomously with Sally. But is he? Because of VISAGE, his embedded visual capture system, Spillikin should be able to track visual movement and respond to it. The idea of the robot's abilities to be social is further intimately bound to him executing humanlike gestures and social cues (Breazeal, 2002, p. 236), but not necessarily to autonomous or interactive responsiveness. It seems useful to clarify why interaction and sociability are based on different ideas, but blur into one another. Kanda and Ishiguro (2013) suggest a context-dependent understanding of the humanoid interaction that is bound to the "daily environment [in which the] robots encounter humans" and in which "they have to interact with them" (p. 2). Breazeal instead moves the quality of being 'socially interactive' (Breazeal, 2002, p. xii) away from the robot to the human tendency to anthropomorphize humanoid robots by treating them like humans. The distinctions of being 'socially situated' and 'socially evocative' as suggested by Fong et al. (2003, p. 145) seem clearer. Breazeal's idea of 'socially interactive' further implies a wider agency of communicating, expressing and receiving emotions, learning and developing social competencies, while 'socially situated' (Fong et al., 2003, p. 145) refers to being placed in a social context and 'socially evocative' (Breazeal; as cited in Fong, 2003, p. 145) amplifies the robots' reliance on the human response to their humanoid features. These views support the understanding that Spillikin's gesturing on stage might be socially situated and evocative, but not necessarily interactive. However, the prolific nature of scientific rhetorics undoubtedly imply a blurriness around these terms, making it hard to pinpoint the essential differences. The understanding of the robot's interactive sociability must ultimately combine what is already possible and what is yet to come. However, the relevant concept used in this text comes from performance studies, not robotics. LePage (2015), director of the Robot Theatre, sees the issue of humanoid social interaction as being intertwined with the issue of liveness and presence, qualities which are, according to her, still lacking in humanoids, thus discrediting them as stage performers.

LePage's arguments are illustrated in the play. Despite the appraisal of the social interaction by the engineering company (and in reviews; see more on Spillikin as an 'actor' in Kettle, 2015), several cues point to a lack of the previously acknowledged qualities. Since Spillikin's personality is based on him executing gestures or responding to Sally's mental state by inclined head movements, (seeming) eye contact, questions about Sally's well-being, etc., the audience can easily derive his interactive capacities from the visual similarity to a human-human interaction and by him responding or making humanlike gestures (Duffy, 2011). When taking a closer look at two scenes in which Sally (often quietly) enters the room while seeking his attention, one notices that she is not positioned in his field of vision, but slightly behind him. Yet, Spillikin responds and 'interacts' as if he can see or hear Sally (Figures 1 and 2). This partial "lack of vision" of the robot makes it technically very difficult for Spillikin to interact live with Sally, yet, it remains almost unnoticeable for an untrained audience.



Figure 1. Scene of the play *Spillikin – A Love Story*.
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Figure 2. Scene of the play *Spillikin – A Love Story*.
Image rights with the author.

The social cues and gestures are executed so smoothly that the lack of presence and aliveness remains unnoticeable; even if the robot appears to be live and autonomous, the interactions and dialogues are partially recorded in advance or remotely controlled from backstage.⁶ This indicates that the humanoid's ability to track and decipher faces and gestures (Bréthes, Menezes, & Lerasle, 2004) is barely (if at all) in use, despite it being advertised as technically possible. Assuming these scenes could have been a perfect opportunity for the robot to prove its technological advancements and engage with Sally in some degree of sociability, the result is the opposite of what is advertised. Without judging this as a mistake or intentional deception, it is more likely that the promotion of Spillikin's sociability and his role a social (inter)actor simply collided with the technological reliability to deliver. Considering the sensitivity of the topic, the risk of the robot failing to be responsive and thereby unsettling the audience must have seemed too great.

These issues do not yet explain why this deception of a 'not yet possible' interaction becomes ethically problematic, as suggested at the beginning. The argument here is that the focus on the staged interaction supports the illusion of a social interactivity that might not be possible, while it masks the actual abilities of the robot to track movement. The decision not to use the humanoid's technological abilities to track Sally's expressions suggests they are not developed enough, therefore the robot is far from being alive or autonomous. However, the audience might not be able to come to such a conclusion. Their lack of technological knowledge to recognize what is possible on- and off-stage adds an ethical dimension by allowing for deceptive promotion of the humanoid's technological advancement to appear more autonomous than it could be without having recorded it in advance. If the audience has not experienced any interaction with humanoids previously, the exhibited mimetic qualities might be projected (see "onto-epistemic mimesis" in Reilly, 2011, p. 7) onto the ontological abilities of the humanoid. This means that the audience could leave the theatre believing that the staged qualities of the humanoid are present in its abilities off-stage and consequently also in its caring abilities.

One could argue that the stage is allowed and encouraged to create an illusion and deception around technological progress to provide an entertaining or appealing script.⁷ Styan (1981) correctly argues that "the playwright's task is to flex the aesthetic distance between the illusion on stage and the reality in the auditorium, matching the doubts in our minds with the stage action in order to create a dialectic of

⁶ The review on *Spillikin – A Love Story* in the *Time Out* magazine (Hobson, 2015) points to the robot being remotely controlled.

⁷ *Spillikin – A Love Story* is understood as a modern/realistic drama, grounded in a narrated, two-character based dialogue and story line that encourages a realistic understanding on the humanoid abilities to be as interactive off-stage as on-stage (see Naturalistic/realistic drama, n.d.).

feeling” (p. 81). But again, in this case, this *flexing* could become a problem for an off-stage understanding that—coming back to Reilly (2011)—could end up in an ontological inference trap.

Ultimately, *Spillikin – A Love Story* does well in linking the discussion on technological applications in care to the embedded ethical issues (see Bunting, 2016; Dakers, 2015), even if it neglects certain issues this paper raises. It is therefore considered a reflective play and script. The critique here amplifies that the stage is not a neutral space. The dramatic exhibition of technologies, from automata (Reilly, 2011) to computer screens (Saltz, 2013) co-shapes their understanding off-stage. Considering humanoid robots are increasingly affecting people’s privacy and data (Royakkers & van Est, 2016), the possible ethical conflicts seem significant enough to be addressed.

Acknowledgements

This version was edited and improved thanks to valuable and dedicated feedback from Thomas Colin, James Cunningham and Klara Łuczniak by addressing questions on robotic autonomy, dramatic deception and the motivations behind robotics and collaborations on stage.

This paper was initially presented at the conference OTLip17: CogNovo Colloquium on Experiences and Applications of Cognitive Innovation at Plymouth University, Plymouth (August 16–18, 2017).

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