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Presence, in computerized environments

Annie Luciani [ACROE&INPG]

Is presence a new question?

The distinction of what is real and what is non-real is an usual and long lasting question of philosophy, as well as of physics. Recently, in his theory of veiled reality, Bernard d’Espagnat [d’Espagnat, 1995] has pointed out that in physics, the reality remains intrinsically unknowable in details but the knowledge developed by physicists as description of the phenomena, enlightens the structure of an underlying reality. Remembering that psychology was in the past a part of philosophy, and that it joined the fields of experimental sciences only recently, with psychologists as P. Piaget, we can assume that the problem of presence, considered from these points of view, is not a novel question.

What about presence in digital technologies?

No explicit problem of presence occurs as long as human beings manipulate real objects, directly or indirectly through mechanical instruments.

In teleoperation [→ Teleoperation / telepresence / telesymbiosis], when objects are mechanically teleoperated, as in the manipulation of blocks of nuclear matter through a mechanical pantograph, since the experimenter feels it mechanically and sees it through the glass that separates the two spaces, the immediate and trivial presence of objects continues to be felt by the experimenter. Conversely, once this direct physical communication has been replaced by electrical communication between the two spaces, the space of the user and the space of the task, the physical continuity of both is broken, causing the lost of

the trivial sense of presence of each space to the other.

Similarly, in the context of sensorial data production, representation and transmission, no explicit problem of presence appears, when sensorial data are directly provided by real objects, or indirectly provided through sensors (microphones, telephones, cameras, etc.).

Since the 50’s, with the demonstration of Shanon’s theorem and its implementation in digital to analog converters, real sensorial data has begun to be producible *ex nihilo*, i.e. without any real objects, by abstract and symbolic entities such as numbers and algorithms. Indeed, a new problem of presence appears when human beings are (more and more frequently) called upon to perceive and act on spaces that are increasingly distant or different from our current physical world, by means of new instruments as tools for telecommunication, teleoperation, and computer representation, These new tools raise with growing urgency the question of the presence of these distant spaces.

Presence: “being there” vs. “being with”?

In both cases, the two fundamental properties that have been lost are the same: those that relate to the spatiality and those that relate materiality of the manipulated real objects or recorded phenomena produced by real objects.

Those related to spatiality are know as the sense of “being there”. It appears mainly within the virtual environment and immersion paradigms [→ Immersion vs. *vis-à-vis*].

Those related to materiality are addressed by the senses of “being with” and are related closely to the instrumental situation, implemented for example by means of virtual or artificial realities [Luciani 2003, 2004] [Touch-Hapsys FP6 Project].

An instrumental approach of Presence

In the latest instrumental situation, we assume that the quality of presence (more or less presence) could be defined as the capability of the instrumental situation (i.e. of the

instrumentally manipulated object to be present for the instrumentalist) to perform the instrumental task.

Hence, presence is assumed to be a pragmatic feature. There is no need to discuss about neither reality nor illusion of the reality, the computerized object being, after all, a part of the real world.

The instrumental interaction with computerized object (with computer simulacrum) is a real situation that must necessarily exhibit the minimal sensorial and handling properties necessary for human instrumental performance. Presence is then measured through the capability of the instrument to be adapted to the human senses, skills and cognition to perform an expected task.

Hence, presence is one of the properties of the new instrument when based on digital technologies.

References

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