

SPACE AS INTERFACE – BRIDGING THE GAP WITH CAMERAS

2007
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This Ph.D. dissertation takes its offset in the migration of technology and computing power into our physical environment. The consequence of this movement, termed ubiquitous computing (Wieser, 1991), is a new relationship between humans, technology and spaces. In this new context, I seek to conceptualize space as more than the physical container for human activity. I do this by investigating space as interface.

Based on a theory of space and place set forth by Tuan (Tuan, 1977), and informed by an explorative research approach, I make the distinction between space and place as a Euclidian space and a Phenomenological experienced place. In this perspective, place is created by humans as they appropriate space in investing it with emotions and memories and hereby making it meaningful. Space consists of formable physical and digital space, whereas place is made up by four dimensions relating to personal, physical, social and cultural aspects towards space. As these dimensions are tied to the humans who experience the space, the designer can not directly influence and form the creation of place.

This division puts attention to two gaps necessary to bridge. The first is the gap between physical and digital space, that in order to make the two domains communicate has to be perceived as a measurable Euclidian space. The other gap is between space and place, in which the design of space has to serve as a carrier of intentions towards place-making. This hermeneutical gap confronts the use as a definition by design with actual use (Hallnäs et al. 2006). The challenge thus becomes understanding space as the interface, and further how intentions can be induced into the design of space in ways that point towards the dimensions of place, when interpreted in actual use situations.



By designing and exploring a range of interactive systems through the Ph.D. project, I have identified different significant aspects in the relation between space and interface. Based on empirical work, I distill a fragment of work concerned with cameras as the interface for bridging the gap between physical and digital space. By looking across multiple projects spanning over fields such as tangible user interfaces, augmented reality, and mobile computing, a conceptual framework characterizing camera-based mixed interaction spaces is developed.

To show the applicability of the framework, it is deployed on one of the presented cases and discussed how aspects in the framework can address the intentions towards the user's creation of place. On the basis of these discussions, a number of guidelines for the design of mixed interaction spaces is presented.

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