Architecture and the poetics of interaction
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Architecture has traditionally been understood as those physical, static objects that make up our environments and enclose us, like walls, roofs and floors. One might call these the hardware of space. An alternative approach is to think of architecture as software: the ephemeral sounds, smells, temperatures, radio waves, even social relations that surround us. Pushing this analogy even further, we can think of architecture as a whole as an operating system, within which people write their own programmes for spatial interaction.

Ubiquitous computing, like architecture, is the practice of designing spatial configurations that provoke interactions between people, and between people and their spaces. Architects contribute to the discourse because their expertise lies in designing spatial and environmental "situations". However, while ubiquitous computing research tends to emphasise efficiency, convenience, punctuality and predictability, architecture, on the other hand, can give clues about ways to develop spatial poetics.

Architecture considers spatial frameworks, not as rigid, absolute structures, like the Star Trek Holodeck which seeks to recreate or represent whole physical spaces, but rather as a collection of fluid relationships. These relationships (between people and objects, objects and spaces, people and spaces) grow out of conversations in an environment: people give meaning to their environments by using them. This requires a ubiquitous computing interface that depends not just on sensing and computation, but also on providing rich, suggestive outputs. (See Scents of Space, by Pletts Haque, an interactive smell installation, next page).

In its ideal form, such a framework is a transparent system that changes the nature of designed space: a truly ubiquitous computing places the configuration of spaces (that is, the design of space) within the hands of users themselves.

Architecture, as system design, can provide meta-programs within which users construct their own programs. In computers, an operating system is the software (like Windows NT, Unix or Mac OS X) that runs a computer at its core level and which provides a platform upon which to run other programs. Extending the analogy to architecture, a spatial operating system provides interaction systems that encourage multitudes of architectural programs. In a ubiquitous computing environment, users are the designers of their own spaces — and, since space design is a collaborative project, one might call these "open source".

An open source architecture requires a ubiquitous computing system in which people can participate both in the design and the use of a built project, in such a way that the project can constantly be "patched". If we assume that architectural interaction systems can deal with the practical and functional requirements of environmental construction then the beauty in design comes from the creativity of those who use/implement/remeke it.

Such an architecture is explicitly dynamic, a shift that opens up a wealth of poetic possibilities for designers of open source space. Contemporary computing relies far too heavily on unnatural logic systems that presume that we all see, all things, the same way. Ubiquitous computing, through the focus of architecture, encourages us instead to find our own logics and leads us away from designing for verisimilitude and towards designing for abstraction.
Scents of Space: an interactive smell installation
Josephine Pletts and Usman Haque (Pletts Haque) with Dr. Luca Turin (Flexitrail Inc.)

This research project posits that if an architectural space could be precisely "tuned" with scents, it would be possible to create completely new ways of experiencing space. We believe that smell helps to alter our perception of a space: its size, its openness, its intimacy. We suggest that designed "scent environments" could, with great subtlety, define the mood of a place and the lifestyle of its occupants.

The research team has developed a system to position smells within three dimensional space and control fragrance zones that move through a space. Airflow within the space is generated by an array of fans. Moving air is controlled by a series of diffusion screens to provide smooth and continuous laminar airflow while computer-controlled fragrance dispensers selectively scent regions of the pavilion (approx. 20cm resolution) in response to visitors' movements.
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