Spaces of Interaction, Places for Experience

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ABSTRACT

Spaces of Interaction, Places for Experience is a book about Human-Computer Interaction (HCI), interaction design (ID) and user experience (UX) in the age of ubiquitous computing. The book explores interaction and experience through the different spaces that contribute to interaction until it arrives at an understanding of the rich and complex places for experience that will be the focus of the next period for interaction design. The book begins by looking at the multilayered nature of interaction and UX—not just with new technologies, but with technologies that are embedded in the world. People inhabit a medium, or rather many media, which allow them to extend themselves, physically, mentally, and emotionally in many directions. The medium that people inhabit includes physical and semiotic material that combine to create user experiences. People feel more or less present in these media and more or less engaged with the content of the media.

From this understanding of people in media, the book explores some philosophical and practical issues about designing interactions. The book journeys through the design of physical space, digital space, information space, conceptual space and social space. It explores concepts of space and place, digital ecologies, information architecture, conceptual blending and technology spaces at work and in the home. It discusses navigation of spaces and how people explore and find their way through environments. Finally the book arrives at the concept of a blended space where the physical and digital are tightly interwoven and people experience the blended space as a whole. The design of blended spaces needs to be driven by an understanding of the correspondences between the physical and the digital, by an understanding of conceptual blending and by the desire to design at a human scale.

There is no doubt that HCI and ID are changing. The design of "microinteractions" remains important, but there is a bigger picture to consider. UX is spread across devices, over time and across physical spaces. The commingling of the physical and the digital in blended spaces leads to new social spaces and new conceptual spaces. UX concerns the navigation of these spaces as much as it concerns the design of buttons and screens for apps. By taking a spatial perspective on interaction, the book provides new insights into the evolving nature of interaction design.

KEYWORDS

Space, Place, Ubiquitous Computing, Interaction Design, User Experience (UX), Blended Space, Information Space, Digital Ecologies, Navigation, Conceptual Blending, Designing with Blends

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Preface

I began thinking that using interactive systems is like being in a different space sometime in the 1990s. I was on a plane going to a conference on digital libraries in Crete when it came to me that finding things in a large digital library was rather similar to traveling through the physical world. You might be browsing around to see what was nearby, or heading directly to some particular destination. You could be skimming over the surface or drilling down to get at the details in some particular spot.

Over the last twenty years I have explored these ideas through a number of funded research projects, teaching courses to students, writing articles and exploring the issues with masters and PhD students. With this lecture, I hope to successfully pull together these ideas into a useful way of looking at the human condition in these days of pervasive and ubiquitous information and communication technologies (ICT).

Spatiality as a philosophical position has been gradually gaining ground over the same period as I have been thinking about the interaction of people in spaces. Ed Casey, the American philosopher, wrote *Getting Back into Place* in 1993 and produced the second edition in 2009. In this second edition he notes the growth of spatiality and space and place studies. Other important philosophical treatments of space, place and the human condition include Jeff Malpas's book *Place and Experience* published in 1999 and his development of Heideggerian phenomenology. Another significant contribution to spatiality and different ways of thinking about space is Tim Ingold's work including *Lines: A Brief History* (2007).

Spaces of Interaction, Places for Experience is a book on Human-Computer Interaction (HCI), interaction design (ID) and user experience (UX) in the age of ubiquitous computing, coming from a spatial point of view. In the course of the book we will explore issues of space and spatiality from a number of different types of space. We will look at physical spaces, digital spaces, information spaces, social spaces and blended spaces. We will look at how people move through different spaces and at how spatial relations can be understood in different types of space. We will look at liminal spaces, the boundaries between spaces.

And it is timely to do this. Dourish and Bell (2007) look at interaction through "the lens of infrastructure" arguing for "space as an interactional and cultural construct." Dörk et al. (2011) discuss the "information flaneur" pointing to the similarity between information searching and wandering the streets of 19th century cities. Alan Dix and his colleagues, along with others talk about "ecologies" of devices (Dix et al., 2000; Terrenghi et al., 2009). Mikael Wiberg and others talk about "information landscapes" (Stolterman and Wiberg, 2010). Most importantly the modern day

philosopher Luciano Floridi discusses the idea of an "infosphere" and people as "inforgs" (Floridi, 2014) and how new technologies have brought us to the fourth great revolution in human thinking and philosophy. Just as the discovery that the Earth orbits the sun and Darwin's theory of evolution caused people to reconsider their relationships with their world so the current information revolution forces us to consider the relationships between people and their environment that now include this huge amount of readily available information.

Dourish and Bell write:

> "We refer not simply to physical infrastructures but more broadly to infrastructures as fundamental elements of the ways in which we encounter spaces—infrastructures of naming, infrastructures of mobility, infrastructures of separation, infrastructures of interaction, and so on. In so doing, we are foregrounding an interest in the cultural constructions of space, and in turn, infrastructure."

In a similar fashion, we present issues of naming and making meaning when we discuss semiotics (Chapter 2) and information spaces (Chapter 5); we look at mobility in Chapter 8 on navigation and at the social issues in Chapter 7.

In Chapter 1 we explore some of these ideas in the context of interaction design and talk about how to understand people making use of interactive systems, what level of abstraction is useful and what insight does it give us. In Chapter 2 I lay out the philosophical standing that will underpin much of the discussion. This position is that there is little point in looking at people if we define people as existing independently of their environment. A person is always somewhere and is always surrounded by stuff. People need air to breath. They often wear clothes. They use knives and forks to eat with and use long poles to knock apples off a tree. These "extensions of man" (cf. *Understanding Media* by Marshall McLuhan, 1963) allow people to extend their immediate sphere of influence. Spectacles allow me to see further. Prosthetic limbs allow para-athletes to run and jump. Cars enable me to travel faster. In this chapter we look at people and the media in which they live and how best to describe this medium to help us understand interaction.

In Chapter 3 we turn to physical spaces. How have philosophers and designers, artists and gardeners described physical spaces? What is important about the world around us—both the natural world and the built environment? What effect does the physical environment have on us as people and how we think and feel? These questions are explored through a number of phenomenological accounts of place-by-place theorists, architects and town planners.

Chapter 4 considers digital space. When I first came to computers, I understood how they worked. I understood about data and binary digits and how the data was stored and accessed. I knew about file structures and indexes and how data was transferred over networks. I knew about emails and how they were routed through different nodes on a network to make their way from my computer to someone else's. I am not sure I do any more. Chapter 4 discusses digital technologies and digital ecologies—the different configurations of devices and communications and how they

work together. In Chapter 5 we look at information spaces and information architecture and how people find, or fail to find, the information that they are looking for. In Chapter 6 we turn our attention to the conceptual space of knowing and understanding and review modern theories of cognition and action and how people classify things in the world.

Chapter 7 introduces some ideas on social spaces in this context and in Chapter 8 we explore how people navigate spaces, moving from the physical world into the digital world and back again. Chapter 9 introduces blended spaces. Blended spaces are spaces where the physical world and the digital world are closely integrated and designed to provide a different sense of presence, of being in a different type of space. Some conclusions about places and experience in the blended world of ubiquitous computing are provided in Chapter 10.

An important aspect of this book is to understand what it is trying to do and what it is not trying to do. I am not a philosopher, but I do engage with philosophy. I am not classically trained on philosophical debate, but that does not stop me from having philosophical ideas. I am not a psychologist, but I do psychology. I know little about perception and little about neuropsychology, but at a conceptual level I understand how people make sense in the world.

I come at these topics from the perspective of an interaction designer and new media commentator. I come at this subject from the perspective of spaces and spatiality and how seeing people in the space of new media and ubiquitous computing provides interaction designers with new insight. Spatiality makes us think about things in terms of spatial constructs and spatial relations. We can think about how things are laid out and how close things are to one another. We can look at distance and direction and density. We can look at the ordering of objects and relations such as before and after, under and on top. We can think about how things move through spaces and how things move in spaces. We can think about perception and navigation. So the aim is to look at interaction and experience from a spatial perspective, placing people in the context of the technological world and where interaction is a fundamental primitive of the human condition.

During this exploration I lay down some challenges for philosophers. For example the current theory of the extended mind and embodied, embedded cognition argues that thinking and knowing do not happen simply inside your brain. Several philosophers use the example of a blind man's stick to question where the blind man's ability to perceive and understand is located. Andy Clark asks what is the difference in thinking between one person, Otto, who writes things in a notebook and others who remember details. Is the notebook part of Otto's thinking? However, these examples seem to me to ignore an important part of the world. I want to ask them what the stick is made of, how flexible it is and whether it is white. When Andy Clark talks about Otto's notebook I want to know how big it is, how many pages it has and what else is in it. In other words I want to know about the interaction of people with their extensions and what experiences they have as a result of using and engaging with these extensions. This is user experience and it comes from design.

The famous quotation by Plato—that in order to understand phenomena we need "to carve things up at the joints"—comes back to haunt philosophy as it has largely ignored the fundamental part that interaction has to play in cognition and experience. As interaction designers we design the extensions; we create the tasks that people have to undertake in order to do something. A designer created the blind man's stick and this fundamentally affects the blind man' experience of the world. A designer created Otto's notebook.

The second challenge for philosophy and for those working in HCI and ID is to what extent the ideas of information spaces and conceptual spaces are a metaphorical use of the idea of space and to what extent they are a literal use. If we accept that technologies provide extensions to people—that technologies are a part of the lived world—then clearly being in the world involves being in a context that includes interactive technologies. Just as we would not deny that physical spaces include the landscape, seascape and soundscape, so they include the information space, the "semioticscape," where meanings and feelings are experienced. You inhabit eBay because you want to buy some clothes and that is where the transaction takes place just as if you go to a high street store and the transaction takes place there. At some point being-in-the-world reaches out into semiotic space, whether that is the meaning attributed to a bridge over a river (to use an example from Heidegger), or the record of a credit card payment in the high street store.

Dourish and Bell conclude their paper by saying, "Finally, there is already a complex interaction between space, infrastructure, culture, and experience." In this book we explore exactly what this complex relationship is like.

Finally I would like to acknowledge the input of ideas and words into this project from Oli Mival, Shaleph O'Neil, Serkan Ayan, and Brian O'Keefe.