

## ***Ambient Commons***

Malcolm McCullough

*Ambient Commons* is about attention in architecture. It is about information media becoming contextual, tangible, and persistent. It begins an environmental history of information. I am taking two phenomena that I see gaining currency in the rise of the “augmented city,” and exploring whether it makes sense to combine them. “Ambient” is that which surrounds but does not distract. Information is becoming ambient. Architecture is rediscovering environment and atmosphere. “Commons” is that which self-governs resource sharing, a process which political economists increasingly see complementing markets. “Information commons” has been topical since the mid 90s, but only now begins to merge with physical space. “Ambient Commons” does not exist except in a few niches of music: not in media studies, nor pervasive computing, nor urbanism. But should it?

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## INTRODUCTION

*(written in the winter of 2010 at the start of the main period of writing)*

Dear Reader,

The following pages introduce *Ambient Commons*. Let me start from a very broad cultural context, and end on the state of the work.

If design is a communication art, what happens as communications become so prevalent as to seem ambient? My question concerns attention. Critics say there is no such thing as information overload, only information overconsumption. Debates on multitasking have become a very hot topic this year. The cognitive neuroscience people in my university have a great deal to say about this, as does my kid's third grade teacher, and of course all the lawyers at work on digital billboards and texting-while-driving.

Instead of taking positions on these overarching topics, I think I can tap some of their cultural energy into a more specific agenda of my own. Does ambient information increase or decrease awareness of surroundings? Naturally this varies by context. It also varies by the scales and topologies of media. I aim to explain the role of architecture in this.

The cognitive disciplines have neglected environment too long. Architects ever emphasize formal novelty over habitual perception. Interaction designers want to learn some urbanism. I see a substantial gap. By documenting recent phenomena in the likes of urban tagging, responsive surfaces, atmospheric architectures, local resource networks, and public media facades, I hope to raise a timely and useful challenge.

The Ambient, as a noun, might be title enough for this thesis. I lack any better neologism. Lately the word belongs to Twitter enthusiasts, who use it in a social sense, but I see many other meanings. To architects the ambient may suggest atmosphere, which may once have implied luxury, but which now belongs with the demands of environmental performance. Because these are matters not only of engineering but also of cultural values, the ambient has become quite a practical concern. This need not seem dreary, for awareness might come from delight. Architects' rediscovery of sound, light, air, and warmth arises not only from duty to planet but also from a need for more simply embodied pleasures, as if the built world has become too standardized, at least physiologically. The Ambient need not be uniform.

Ambient Information becomes a design challenge in itself. As researchers around MIT might well know best, microchips are getting cast into building materials, sewn into clothes, and stuck onto walls as graffiti. Screens themselves have diversified in scale, from huge media facades to the tiny handheld gadgets that people watch so obsessively. The explosive growth of locative media also runs on global positioning, radio-frequency tagging, augmented reality overlays, and local-

hop communication. Two years ago my focus was more on these technological developments, and on arts projects interpreting them. But I was unable to shape a manuscript to my liking until I stepped back to see so many other aspects of the ambient, often in historical perspective, and mainly as a cultural transformation. Besides, older media channels seem everywhere lately too: it has become difficult to find a bar without televisions, or a sidewalk without audio speakers. One company sells underwater speakers for swimming pools.

“Silence is a commons,” Ivan Illich once wrote. The idea of a commons, however well known for how it expresses environmental tragedy, also has echoes and overtones in information culture. Scholars so eminent as Larry Lessig, Elinor Ostrom, and Lewis Hyde have charted this domain. The work of Illich may still resonate best, however, for how his notion of “conviviality” expresses a commons-sensed understatedness that is vanishing. There is an old language-learning exercise where you tag household objects with yellow stickies declaring their names in, say, French, as if you were unfamiliar with them. Yet this happens elsewhere too. As of last month, the parking lot into which I turn left each morning now features a sign indicating that parking is to the left. Who knew?

I met a man from Ghent whose business card declared him to be a Light Planner. He applies the “lean and green” principle of “doing more with less” to nighttime illumination. “The more that electricity costs,” he explained, “the less we may carelessly waste, and the more coherent the evening cityscape should become.” What else besides light gives a choice between creative restraint or casual pollution? What about messages, sensors, or tags (like that parking sign)?

Twenty years have passed since Richard Saul Wurman coined “information anxiety.” This still-apt expression suggested how getting more understanding from less information might be the basis for a design discipline, one that has since become widely recognized as interaction design. Today as interaction design takes on ambient urban computing as subject matter, an audience for my inquiries clearly exists. They took up *Digital Ground*, for all its faults, and their many invitations to workshops and conferences have provided me with much more perspective on these matters, as well as demand for a followup, and even some response to my early attempts.

Yet I could be writing for anyone who senses that the nature of distraction is changing. (If I seem just to be adding to a glut, I must request, like a highway resurfacing crew, some temporary inconvenience for the sake of permanent improvement.) For instance, what if instead of multitasking or glut, the approach to attention is in silence and noise? Is a signage district like a cocktail party? As in Tokyo, does the shimmering visual noise of the city always attract? In his masterful *Moment of Complexity*, Mark C. Taylor wrote: “The interplay of noise, which is informative, and information, which is noisy, creates the conditions for emerging complexity, which is the pulse of life.”

It is a cultural era and not a technological wave that I am probing. I hope this work can become more philosophical, like my earlier *Abstracting Craft*. What is it like to live surrounded with information, to do more with less information, to keep a commons amid so much private chatter, or to know the world without needing to label its every object? Where do you expect silence, where do you welcome noise, and how, amid those, do you ever pick up a signal?

To avoid losing my own signal, I had to keep working on this manuscript. Now I have a chance to finish it. For most of the coming year I am on sabbatical from the University of Michigan. For the winter I have been a guest of the Berkeley Center for New Media, which I have chosen as a crossroads most likely to provide many conversations about this work.

I have organized the core chapters topologically: points: "Tagging the Commons"; areas: "Frames and Facades"; volumes: "Architectural Operations"; networks: "Text in the Megacity"; and space&time: "Environmental History." These I bracket with an opening chapter, "Ambient in Formation" (after Taylor's *Noise in Formation*), and a closing one "Intrinsic Structure", plus two very short prologues. Of these seven chapters I have drafts of four, although none quite ready as a sample. All this before the sabbatical.

I feel much better organized than on my sophomore struggles with *Digital Ground*. I am confident that I could deliver a manuscript that is editorially sound. I expect to make illustrations much more intrinsic, for instance. I am doing my best to keep a balance of news items, blogosphere links, journal articles, and integrative scholarly books. I still feel a need for more developed reflections than I get from the net, I still react mostly to well-conceived books, and I still believe in the general reader.

Malcolm McCullough

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## GENERAL QUESTIONS

*(written in the winter of 2010 at the start of the main period of writing, and updated\*\* with a few remarks amid the final rewrites)*

### What is it about?

Attention, amid ambient information. As the forms and contexts of information feeds now proliferate, what happens to attention? Do ambient media help people tune in to their surroundings (as all humanity now needs to to) or just to turn out in more ways? What is the role of the built environment in calming and directing attention? Now as architecture becomes layered with media, and urbanism becomes an important frontier in information technology, is information environmentalism a reasonable concern? Is there a new kind of tangible information commons?

### What does it feature?

This book mainly provides connections among fields, such as interaction design, cognition, architecture, visual culture, and environmentalism, as those are brought together by the challenge of ambient information. The book offers both philosophical argument and survey of examples. It juxtaposes new technologies, recent works of art and architecture, and counterexamples from history. For anyone not already familiar with urban tagging, media facades, screenless images, responsive surfaces, soundscapes, crowdsourced building environmental controls, worker co-presence systems, trackable resources, self-organized urban environmentalism, parking clubs, do-it-yourself pollution monitoring, or the current wave of “reality browsers,” here is a good compendium of the ambient and augmented city.

### How is it organized?

Topologically. The five core chapters are, in effect: points, areas, volumes, networks, and environments. But first comes a section set of much shorter chapters to define my terms and introduce the main concepts, and afterwards closing chapter on what the reader might take away from all this. All this is bracketed with a short prologue and epilogue.

### Who is it for?

Designers, first off. This book could be useful for the many disciplines that are designing situated information technologies for architecture and the city. Yet as mentioned, I do still believe in the general reader. For past work my audience comprised interaction designers, architects, sociologists and historians of technology, device builders, urban informatics pioneers, and more, all over the world, if only a dozen per country. Perhaps the single biggest group has been students of interaction design and tangible computing. Many of these readers have asked what would be next. I am also now writing for a larger crowd in politics, civics, or environment, indeed anyone who shares my view that attention amid ambient information has become a timely topic.

**What are you seeking?\***

With information everywhere, how might you perceive the world? Planetary change demands rapid cultural shifts, especially in how to value surroundings. Ubiquitous media, once thought placeless, increasingly influence this transformation. Locative media have indeed become a booming industry. “World browsers,” responsive buildings, smart surfaces, and street-level social navigation increasingly add to the noisy diversity of city life, to support a new kind of attention economics. The picture of information overload is quickly changing. Amid this abundance there now arises an awareness of continuum and a continuum of awareness. You might call it the ambient, as a noun, as if a thing. The ambient moves attention back into the domain of architecture. In doing so, it raises a design challenge. Does the ambient increase or decrease other sensitivities to surroundings, both built and living? Does “information experience” necessarily imply white noise, dematerialization, and escape? Is “information commons” solely an intellectual property construct? Why, at the start of this writing, did “environmental history of information” yield a null search on Google?

**Why are you doing this?**

I really think that aside from planetary change, the superabundance of information has to be the next most daunting attribute of these times. Now the rise of the “augmented city” gives this particular currency. (And planetary advocacy indirectly gives it impetus, as I am writing about awareness of surroundings.) For my own purposes, and through the lens of my own discipline, which I take to be the intersection of architecture and interaction design, I need to make sense of this wealth of urban informatics, and more specifically, of its impact on attention to built environments. My own future as an educator depends on that.

**What is this not?**

While about attention, this is not about the future of reading or learning. While about ambient media, this is not about general media, such as broadcast culture. While about creative work it is not focused on minimalism in the arts. While about physical contexts, this is not about urban informatics writ large, with all its implications for surveillance, infrastructure, long-tail markets, or participatory civics. Or at least I try to confine my encounters with all that to a single chapter on networked cities. While about tangible interfaces, this is not about prosthetics or cyborgs. I assume that humans and technology have not yet merged. Finally, while about commons, this is not about nostalgia, nor, conversely, collective utopia, nor even Web 2.0. I avoid using the future tense. This is not a manifesto.

**What is the key concept?**

The ambient, as a noun. Almost by definition, the ambient has many facets. (See last page.) It is a state of mind and a set of cultural values. The ambient gathers from all the communications that people other than the intended recipients nevertheless perceive. It involves mobile, embedded, and distributed

communications. It transcends messages, however, to become a continuum like light or wind. The ambient resembles electrification, and especially electric light: both saturate and transform everyday experience, and yet become taken for granted. It also resembles the spread of text beyond the scriptorium and onto all manner of surfaces and things, only with connectivity, sensors, and memory. Then when those things form a continuum, in shared physical space, there is a new aspect. There may also be a new kind of information commons.

### **Isn't the ambient just a luxury?**

Not if it cultivates environmental sensibilities. Yes, where architectural fashion has taken a turn toward the atmospheric, that might seem ephemeral. Nevertheless something has to take design beyond things. Any turn toward design for climate has to be preceded by delight in ambient phenomena, whether as sun, air, water, or weathering, and that has to be preceded by a simple awareness of these as subject matter. To a generation of architects lost in uninhabitable novelties of digital form-giving, and to a interaction designers crazed with disembodied social navigation, any phenomenology at all seems a useful counterpoint. This is what I say to someone who bumps into me on the sidewalk while staring into his phone: "Be here now."

### **And the augmented city?**

Must "media" mean remoteness? Local is worthy, whether in food, businesses, or communications. People still need the fast and far, but also the close and slow, which has been neglected in the world of electronic network culture. Until now: for recently the fields of social software, information science, interaction design, environmental technology, and architecture have converged on themes of realtime, locative, and situated media. Technologies of positioning, tagging, social navigation, and resource monitoring have become everyday realities, and a booming business. For example, one flagship event is "Where 2.0," whose current call for participation states how "Location intelligence has never been more important. And never has situational awareness presented such disruption and opportunity."

### **What took so long?**

With the exposure I gained from the success of *Digital Ground*, my hope was next to do some project survey and cultural critique in areas I had accurately anticipated. But the field was growing too explosively, and the blogosphere got to everything so quickly. So I spun toward a very long view of locative media, as I was unaware of anyone doing environmental history of information. But I lack the historian's archival chops, and too little of what I did unearth, whether in fine arts, literature, or early scholarship remarked at all on contexts and ephemera. On the other hand, relative to most locative media digerati, who remain focused on technology and the near now, I have much more material (and library access), and over a longer span of time. Indeed I found an infoglut on many related topics. The advance of the web since I last researched a book has been overwhelming.



Gradually I made some sense of what I was finding. In just the last year, the idea of attention management clicked for me on a visit by Richard Saul Wurman (he who coined “information anxiety”), and the idea of commons clicked when Elinor Ostrom won a Nobel (for her work on networked commons). The idea of the ambient has always been with me. To voice it is one of my goals in this life. These ideas began to cross when I quit flying around to so many locative media conferences. For the first half of 2010 I had a sabbatical and was able to work fulltime.

**Why not just blog?**

That would be faster. Yet I like my “now” long. I have a famous historian as an uncle, who tells everyone that the purpose of history is to expand the time period of which you consider yourself a part. For millennium gifts I gave copies of Stewart Brand’s book on *The Clock of the Long Now*, with its famous diagram of pace layering. The long now needs more such advocates. As for printed books themselves, nothing has changed the fact that a house should be lined with them. Good arguments need to be checked again years later. Rich topics take more than a page or two at a time to unpack. I did buy a domain name and web hosting to assist with my writing, but it sits empty. As it turns out, I prefer to work with the door closed, so to speak.

**What is your method?**

As in past work, I try to connect insights from many fields and scholars on a topic just now coming into view. Some call this historical ontology, but I never did. I am an amateur philosopher with a wide range of professional exposures. That breadth is my basis, and it has improved with all the travel gained from my previous book. But I hope I’m no mere tourist. I am a thirty-year veteran in digital media arts. I try to dig more deeply into some questions than most (overstimulated) digerati care to do. I work from an unusual cross section of starting points, with an understanding of trusted guides in a variety of fields, and with a better balance of resources (e.g. art objects, journal papers, media events, and especially other books) than I see many others using. I also believe that the essence of writing is rewriting.

**What kinds of evidence?**

I use many cases and instances of locative media, urban informatics, building technology, augmented architecture and environmental organization. Perhaps this précis should include some sampling of this, but when I simply listed references the result seemed out of context. Better that I should keep enriching the specific instances in the chapter texts. I have looked into more specialized research in, say embedded computing, environmental psychology, or commons organizations, but I know that my role is to interpret and synthesize from those, toward naming something all these fields all have in common, but do not study directly themselves.

**What about illustrations?**

Yes. I regret that my previous book did not make better use of illustrations. This time I feel far more comfort and organization with the text, and have been thinking about visuals from the start. Yet few of the preliminary readers have reacted much to those. I think the illustrations will take up much of the work in wrapping this project for press.

**Who else has similar work?**

I have not discovered any direct competition. Closest might be the next work of Adam Greenfield, *The City is Ready for You to Use*. His 2006 book *Everyware* shared readers with my *Digital Ground*. Adam will get to print sooner this time. He and I admire one another and work quite differently. For a survey of who has written (essays) on the augmented city, a large sampling exists in Ulrik Ekman's anthology, *Throughout*, currently in review at the Press. That is a very different kind of book, of course, and not direct competition. Somebody included there may be writing a book that I am unaware of. Otherwise there are many fine works that inspire, but do not compete. An attached page lists ten.

**In what stage is the writing?**

I wrote most of this manuscript while on sabbatical in the first half of 2010. A draft went to readers over the summer. I did not have much time to work on it in the fall. Official reviews and approvals came through at the end of the year. Now for the next few months comes a busy stage of rewrites and completions, and a semester where I actually have made time for this.

**What did the readers suggest?**

Mainly I need to get my terms and concepts laid out up front. For this I have reworked what were long first and last chapters into a set of shorter chapters in a separate first section of the book. Readers enjoyed the longer chapters and I continue to patch gaps in those. And finally I have figured out how to use commons as a foils to all this without making it the focus of the book. The makes the missing chapter on urbanism much easier to complete, especially amid teaching my annual graduate seminar on urban informatics.

**What advice do you need?**

Right to the end, I am eager for insights from people who have thought more about particular aspects of this than I ever could, particularly about cognition and neuroscience. There I have been encouraged to make connections from architecture but want to avoid trendy "neurobabble." Since in the end this is a philosophy book for the longer term, I am always working to tune and balance it.

**THE AMBIENT IS. . .**

*That which surrounds but does not distract . . .*

*Rampant availability of opportunities to shift attention . . .*

*More than is touted elsewhere by Twitter enthusiasts, or before that by musicians . . .*

*A persistent physical layer of messages for somebody else . . .*

*No longer a luxury, but both a necessity and a nuisance . . .*

*Practical and necessary in embodied interactions*

*Neither handheld nor ubiquitous . . .*

*Made of tags, displays, sensors+actuators, proximate networks, and contextual designs*

*Emergence of context-based cooperation among situated technology practices . . .*

*A continuum of awareness and awareness of continuum . . .*

*A start at environmental criticism of information . . .*

*A way to tune in, or a way to tune out . . .*