ICS 203B: Ubiquitous Computing and Interaction
(also Infx/ENG/ARTS 279)

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Paul Dourish
jpd@ics.uci.edu

http://www.ics.uci.edu/~jpd/classes/ics203bw06

Ubiquitous computing will change the world, or has changed the world, or might change the world, depending on who you listen to and how much you believe them. One thing that certainly seems true is that the emergence of ubiquitous computing has changed (or should have changed) the ways in which computer scientists think about the world, as a site for technologically-constituted action.

The topic of this class is not how to design user interfaces using RFID tags and sensor networks. Instead, we'll be concerned with how ubiquitous computing might cause us to rethink the relationship between people, activities, and the world in which they arise (and, along the way, perhaps how we might rethink the role of RFID tags and sensor networks. Who knows.)

So, I'm going to read the word "interaction" in the title of the class very broadly. A primary focus will be on the ways in which we engage with a ubicomp-augmented world, but also how ubicomp fits into a broader set of social, cultural, and economic processes by which our everyday life is organized and understood. So we'll be interested in how we interact with ubiquitous computing in the broadest sense – not just how we interact with it physically, but how it fits into systems of practice.

There are three themes that I particularly want to explore here.

The first is the relationship between practice, technology, and meaning. How is not just the form but the meaning of a technology shaped? How can we think about the contexts into which it is placed and the uses to which people will put it? How can we think about the relationship between design and appropriation of technology? These questions are all particularly fraught in the area of ubicomp.

The second is the cultural and ideological foundations upon which ubicomp technology design rests. What kinds of assumptions and commitments are implicit in ubicomp design? If we start to think about technology moving off the desktop and into the world, what kind of world is it moving into, and what forces shape its movement?

The third is the philosophical foundations for understanding interaction with physically and socially embodied artifacts. What kinds of models of interaction help us understand what's going on when people inhabit augmented worlds? Is our interaction with ubiquitous computing technologies understandable in the same terms as our interaction with graphical user interfaces?

These themes will run through a series of domains that we'll use to organize our reading and discussions. We'll look at specific designs, approaches, and experiences that help illuminate the broader questions. Each theme will organize lectures, readings, and discussions for a week. The themes that I have in mind right now are: tangibility; practice; domestic spaces; urban spaces; infrastructure; privacy; spatiality; and ideology. There is a little more there than we can actually cover in the time we have, so there will be some adjustment as we go along.

Ethos

One way to run a graduate class is for me to pick a set of topics on which there is already broad consensus in the research community, and then to stand and the front of the room and tell you all about them. I don't find that very interesting, and frankly I don't think that you would either. What's more, ubicomp is a developing field, and consensus is neither as widespread nor as reliable as you might imagine. Instead, this class is organized around broad themes around which there could be significant dissent; indeed, I have often deliberately chosen contentious topics. They are often topics that I am currently attempting to work through in my own research, and ones that I haven't entirely resolved to my own satisfaction, so I am not the arbiter of ultimate truth (for the purposes of this class, at least.) What I want to do is to engage you – and for you to engage each other – in discussion around these topics as a way of bringing you into a series of bigger conversations in the research community.

Format

The format of the class will be split between lectures and student-led discussions. For student discussions, I'll assign two people as discussion leaders, to collectively lead discussion on a number of readings. However, everyone is required to read the papers, and to bring discussion issues to class (I'll set up blog/wiki space to coordinate this.)

Grading

The class will be graded 50/50 on a term paper due at the end of the quarter, and on your contributions to class discussions. For the term paper, we'll determine topics in the first half of the class; the paper will be due at the end of the quarter, but you will be required to hand in a draft in week 8 (for feedback, not for grading).

Readings

We will read two books in the course of this class. The first is "Where the Action Is: The Foundations of Embodied Interaction" by (ahem) Paul Dourish. The second is Bruce Sterling's recently-published "Shaping Things." The books are quite different – Dourish's is a dull academic monograph, and Sterling's is a delightful and insightful rant – but both are published by MIT Press. We will also read a gaggle of papers; I'll try to make sure that you get everything a week or two in advance.

Logistics

The class meetings Tuesdays and Thursdays, 3:30-5:00, in ICS 243. However, I'll be away on the first Tuesday of the quarter (ironically enough, at an organizational meeting for the 2006 Ubicomp conference). So, please note that **the first meeting of the class will be on Thursday April 6th**. If you have friends who plan to take the class but haven't enrolled, please let them know.