CSE5390 & 7390
Special Topics in Ubiquitous Computing

lecture four, long live the death of ubicomp

Eric C. Larson, Lyle School of Engineering, Computer Science and Engineering, Southern Methodist University
class logistics

• look at the schedule for discussion assignments
  • anyone not assigned?
    • **two** discussions for **7000 level**
    • **one** discussion for **5000 level**
  • first on deck: Charlie and Thomas

• be sure that **you can view** the “test” video on **BB by next class**
  • next week I am out of town and you have a video assignment
agenda

- last time: the vision of ubicomp, 10 year anniversary edition
- Rogers: engaging ubicomp
  - context, ecology, and criticism
  - application areas: ubicomp without ubiquity
- Blythe: hitchhiker’s guide to ubicomp
  - reading for the misreading
  - reframing the story
engaging ubicomp

• thesis: the vision of ubicomp will never be more than a vision (in the same way that AI will never be a human)
context is impossible

• understanding context ... is more subtle, fluid, and idiosyncratic than any machine can ever understand (like behavior, mood, and intention)

• ubicomp is doomed by intractable ethical and computational problems...

• would we depend on computers?

• will our ability to learn and remember suffer?

• instead...
ecology of resources

• no need for invisibility, just an ensemble of resources

• ... an internet of things...basically

• design to extend and support what people do

• let person take the initiative in choosing the tool
criticisms of weiser’s ubicomp

• context and intelligence are too hard... successes thus far are underwhelming

• when “it” gets its wrong, we are extremely frustrated
criticisms: data integration

• “While newer technological developments may enable more accurate data to be detected and collected it is questionable as to how effectively it can be used. It still involves Herculean efforts to understand, interpret and act upon in real-time and in meaningful ways.”

• people are unpredictable to our models, especially in real time
criticisms: assistive care

- researchers choose this because “target” and “use scenario” are easily described
- easy to overstep bounds

“Such panopticon developments elicit a knee-jerk reaction of horror in us”
rethinking pervasive

• not an array of invisible sensors, but a rich environment of tools

• interactions should be provocative, telling, thoughtful

• non-experts should be able to build designs (only possible in simple approaches)

• “practices develop around technologies, and technologies are adapted and incorporated into practices” -Paul Dourish
“Is it not the case that children can be highly creative and imaginative when given simply a cardboard box to play with? If so, why go to such lengths to provide them with new tools?”

“UbiComp and physical toys can both provoke and stimulate, but promote different kinds of learning and collaboration among children”
app area: science & thought

• extended periods of learning and analysis
• critical thought

“…create opportunities for groups of students to explore ‘patient’ science”
“A challenge… is for long term studies to … show that it is the perpetual and time-sensitive nature of the sensed data and the type of feedback provided that contributes to behavioral modification”
the “new” ubicomp?

- a more realistic vision?
- visionary?
- is calm computing not relevant if ubicomp tech is not completely pervasive?
- a paradigm shift: practical ubicomp?
• we will never create an artificial human
IBM, CUNY Launch Watson Student App Competition

eWeek (09/04/14) Darryl K. Taft

The City University of New York (CUNY) and IBM have launched a competition that will enable students to use IBM Watson's cognitive computing system to build innovative apps. Registration for the CUNY-IBM Watson Case Competition opened Sept. 4 and runs through Oct. 20. Participants will focus on applying the IBM cognitive technology to improve the operation of higher education and the delivery of public services in New York City. Student teams will meet several milestones during the competition, while being mentored by IBM, CUNY, and other experts in the field. During Watson "boot camp," scheduled for Oct. 24-25, they will present their preliminary concepts. Finalists will participate in a round of presentations on Jan. 15, 2015, and cash prizes will be awarded for first, second, and third place. Participants also will have an opportunity to sign up for summer 2015 internships, join a CUNY Entrepreneurship Boot Camp, work in CUNY's Incubator, and access the entrepreneurship network in virtual and real space. Participants could use Watson technology to enhance the quality and effectiveness of public undergraduate education, or to help better deliver public services such as public safety, health, and transportation.
hitchhiker’s ubicomp

- a critique on ubicomp through literary devices
- give insights toward framing new ubicomp technology and design
- deconstructionism, psychoanalytic, and feminism
- parallel future readings: Arthur Dent and Joe Chip
  - incompetence versus political discord
general criticism

• ubicomp writing is always “just around the corner”

• ubicomp is far more messy than weiser’s vision, thus “we have not noticed its arrival”

• benign political context
taking Sal apart

- Sal feels “cosy” from seeing the neighborhood
  - …like Winston smith “loves” big brother
- she sees her children through a “window”
  - her perspectives are mediated…
- she get the manual to her garage door
  - …because its too difficult to operate
- she “logs in” to work automatically
  - is she getting “clocked in” by superiors?
taking Sal apart

- Sal at breakfast
  - pen: there is a direct link to her office at the table…
  - where are the kids? where is her significant other?
  - technical domination: does technology necessitate that she appears to be working, never interacting “too long” with the children to be judged too “womanly”?
    - total collapse of home versus work has more effect on the social perceptions of females than males…?
  - is she a de-sexed corporate automaton? is this why she can afford the technology?
Sal and Joe

• deconstruct:
  • is sal keeping “tabs” on joe?
  • is there a shadow of anxiety and fear?
  • the big other…

• psychoanalysis:
  • maybe it is collegial, maybe joe wants to be watched
  • “to see without being seen”, technology is aware of it potential intrusiveness
  • surveillance without intrusion
Arthur Dent

• new technology: the fundamental design flaws of technology are hidden by their superficial design flaws

• the alarm clock

• the garage door

• a common mistake in designing something completely foolproof is to underestimate the ingenuity of complete fools…

• is uncooperative technology more likely to be mastered? or abandoned?
Joe Chip

• new technology: it ignores the status of Sal as a executive, Sal’s utopia id Joe’s social dystopia

• widening the technology gap

• benign social contexts: technology is fine

• what happens when there is conflict
  • a cheating spouse? a party at your parent’s house?

• consider weiser’s data trails in the post 9/11 america?
discussion

• is Yvonne’s new ubicomp more to the liking of hitchhiker’s ubicomp?
for next class...

• get discussion questions up!

• Charlie and Thomas to do discussion
  • send me slides the day of class so that I can post them
  • you are welcome to use my computer or your own
  • show up 15 minutes early to test AV
  • you are being recorded!

• next week: video tutorials
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what next ubicomp?

• optional reading from Gregory Abowd
what next ubicomp?

- ubicomp as a niche area doesn’t make sense
- it’s too broad to be an area of computing
- ubicomp research no longer has a well defined vision
- ... it’s the job of industry now! (maybe)
weiser was right

• scaled computing exists (albeit with some counterexamples)

• interconnected devices are pervasive

• different levels of ownership are pervasive

• (don’t worry about disposable electronics)

• ... and now the research is done
distinguished ubicomp

- living laboratories
- maker community
- your-noise-is-my-signal
- multi-disciplinary

- has multi-disciplinary helped or harmed collaborative communities? (double duty)
apps vs tech (theory vs apps)

• applications research vs. technology research

• both have excellent track records

  • ...except when they don’t (hammer in search of a nail)

• our best work goes beyond exploratory research and into the field where it has the greatest impact
an example: mainstream

• developers were no longer computer scientists

• not true for ubicomp (?)

• comes back to the programming interface--its not a 3D world... (this gets back to Matt’s original assertion of Abowd’s datatypes)

• ubicomp needs a well defined fourth generation of computing