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Mobile Technologies: Participation and Surveillance Lesson Plans

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Lesson Plan: Week 1

Week 1: Introducing an STS perspective on Mobile Sensing and Location-Based Technologies
What is mobile sensing? What are location-based technologies? Who uses them, and for what? What are the components and how do they work? Who builds and controls infrastructures for sensing? And what is Science and Technology Studies (STS), and what does it have to say about mobile sensing? This week's readings will provide both technical and lay descriptions of location-based technologies, and introduce us to some of the concepts and social problems that we'll explore throughout the course.

Applications:
Dartmouth MetroSense projects http://metrosense.cs.dartmouth.edu/metro-projects.html; Ushahidi, http://www.ushahidi.com/; Ecorio, http://www.ecorio.org/; CENS Urban Sensing, http://urban.cens.ucla.edu/; Real Time Rome, http://senseable.mit.edu/realtimerome/

In-class activities:
1:00 – 1:20 Names, introductions, reasons for taking the class

1:20-1:30 Self-introduction

1:30 – 2:00 Brief lecture – intro to location-based technologies (CENS urban sensing, Dartmouth MetroSense, Ushahidi, Ecorio, Real Time Rome)

What is mobile sensing?
What are location-based technologies?
Who uses them, and for what? What are the components and how do they work?
Who builds and controls infrastructures for sensing?
And what is Science and Technology Studies (STS), and what does it have to say about mobile sensing?

2:00 – 2:30 Social visions of these technologies –

Clip 1: Batman – The Dark Knight – 36:37

How is the technology portrayed? Positive/negative/neutral?
Why is it ok for Batman to have this technology?
Why is Fox upset about it?

Clip 2: The Wire, Season 1 – Episode "The Wire"- 10:30
How is the technology portrayed? Positive/negative/neutral?
Why is it ok for the cops to have this technology?
What's different between this portrayal of mobile phone tracking and that found in Batman?
Which do you think is closer to "real life"?

2:30 – 2:45 Break

2:45 – 2:50 Explanation of introductory paper (diagnostic)

2:50 – 3:40 Discussion of readings

Comprehension Questions
What does Sismondo suggest is the 'old fashioned' way of thinking about technology?
What is *technological determinism*?
What is the main assumption of Science & Technology Studies?
What is structural-functionalism?
What are boundary objects? (This is going to be important for our work – how do we talk to tech designers, policy makers, and users?)

What's the different between opt-in and opt-out information sharing?
What is *convergence* as Ess describes it?
Give an example of "greased" information.

What is a "Wiki City"?

What is Mobile 4 Development?
What do the authors of the Mobile 4 Development paper suggest helps mobile development projects succeed?

How many of the applications in Honan's article Location-Aware Lifestyle do you use?

Analysis Questions
Given what we've talked about so far, why do you think I've given you readings about Science & Technology Studies?
Sismondo says that one feature of STS is that norms aren't seen as guiding principles, but as rhetorical resources employed in arguments. Can anyone give a technology example of this?
You read one technical article this week (Wikicity). What arguments does the piece try to make? What rhetorical devices does it use to make these arguments? Was there a "battle plan"?
Ess discusses the problem of discussing technology ethics as "moral panics." Can you think of some examples of recent "moral panics" in the news?
Ess discusses "ethical pluralism." How can two different positions arise from shared values across cultures or perspectives?
What do you think of Calabrese et al's idea of a city as a system that can be monitored and better controlled?
How has your experience with location-aware applications been different than Honan's? Why?
What objections do you have to Honan's analysis? What do you agree with?

Readings:
Sismondo, chapters 1 and 3. *These are short chapters designed to give you an idea of what Science & Technology Studies is, where it comes from, and what it might have to say about location technologies and surveillance.*

Sismondo, chapter 14. *This slightly longer chapter gives an outline to how to think about and analyze technical writing from an STS perspective. These are techniques that you will use throughout this course.*

Ess, Chapter 1. *This is a short introduction to some of the ethical problems that new media create. We will be discussing these ethical problems throughout the quarter.*

Calabrese, F., Kloeckl, K., & Ratti, C. (2007). Wikicity: Real-Time Location-Sensitive Tools for the City. Proceedings of CUPUM 2007. http://senseable.mit.edu/wikicity/pdfs/wikicity-at-Digital%20Cities-5.pdf*This is a technical description (from the CS field) of one application of mobile sensing*

Donner, J., Verclas, K., & Toyama, K. (2008). Reflections on MobileActive 2008 and the M4D Landscape. MobileActive.org and Microsoft Research India. http://mobileactive.org/files/DVT_M4D_choices_final.pdf. *This is a social description, from the development field, of what mobile technologies might do for the world.*

Honan, M. (2009, January 19). I am here: one man's experiment with the location-aware lifestyle. Wired Magazine, 17(2). http://www.wired.com/gadgets/wireless/magazine/17-02/lp_guineapig. *This is a popular description of what location technologies might mean for social interactions and day-to-day life.*

3:40 – 3:50: Introduce Next week's readings

Readings:
Sismondo, Chapters 5, 6, and 8. *These chapters introduce the idea of the social construction of technologies, a central theme in Science and Technology Studies, and the analysis we'll be using in this course.*

Ess, Chapter 2. *This chapter is a nice summary of the problems of privacy in a digital age. It will provide a broad outline of the issues, and the following articles will flesh out this argument in more detail.*

Agre, P. E. (1994). Surveillance and capture: two models of privacy. *The Information Society*, *10*(2), 101-127.

Bell, G., & Gemmell, J. (2007). A digital life. Scientific American, 58-65.

Foucault, M. (2002). The Eye of Power: A Conversation wtih Jean-Pierre Barou and Michelle Perrot. In *CTRL [SPACE]: Rhetorics of Surveillance from Bentham to Big Brother* (pp. 94-101). Cambridge, MA and London: The MIT Press.

Assign *- For Further Investigation:*

Andrejevic, M. (2007). Chapter 8, iMonitoring: Keeping Track of One Another. *iSpy: surveillance and power in the interactive era*. Lawrence, KS: University Press of Kansas.

Mann, S., Fung, J., & Lo, R. (2006). Cyberglogging with camera phones: Steps toward equiveillance. In *ACM Multimedia 2006*. Santa Barbara, CA: ACM.

Marx, G. T. (1998). Ethics for the new surveillance. The Information Society, 14, 171-185.
The Quantified Self Blog: http://www.kk.org/quantifiedself/

Lesson Plan: Week 2

1:00 – 1:45: Paper discussion

Discussion of introductory papers – how did this activity go? How did you choose a technology? Do you think you'll do the same tech or a different tech for your final paper?

Discussion of team papers & assigning partners

Discussion of Final papers
Ess chapter 1 provides a useful set of exercises (p. 2-3) that might get you started analyzing a location technology. Review terms of use, code of conduct and reflect on elements you agree/disagree with, and why.

Introduction of writing assistance materials – what is a thesis? What is an argument?
Break down difficult writing tasks

A strong, clear, original thesis
A claim that is debatable instead of descriptive
A paper that anticipates and addresses opposing perspectives
Why is this important to you?
Outlining, reverse outlining
Avoiding repetition
Description vs. interpretation

What is an abstract? Preparation of abstracts for Week 4.

1:45 – 2:00 Break

2:00 – 2:50: Discussion of readings

Start with:
Anna: Andrejevic, M. (2007). Chapter 8, iMonitoring: Keeping Track of One Another. *iSpy: surveillance and power in the interactive era*. Lawrence, KS: University Press of Kansas.

Madeline: Mann, S., Fung, J., & Lo, R. (2006). Cyberglogging with camera phones: Steps toward equiveillance. In *ACM Multimedia 2006*. Santa Barbara, CA: ACM.

Tim: Marx, G. T. (1998). Ethics for the new surveillance. The Information Society, 14, 171-185.

Cocktail party/twitter/parents summaries of the readings (or diagram/picture)

Sismondo, Chapters 6, 9 and 13.

Can someone take a stab at defining "social construction"?

Give an example of social construction.

What is interpretive flexibility?

What is a sociotechnical ensemble?

Where do you fall on a scale between realism & social construction? Why?

What technical, social and economic problems were the developer of [insert tech] trying to solve?

Last week, we talked about disruptive vs. gradual innovation. How does this relate to Sismondo's account of technical traditions of knowledge?

How do location technologies configure their users?

Ess, Chapter 2.

Can someone give an example of when an email revealing an IP address might feel like an invasion of privacy?

In the quote from Lucian Floridi at the beginning of the chapter, the philosopher implies that more than "ownership," personal information is part of an individual. What do you think about this definition?

What do you think of the "generation gap" argument with regard to privacy?

What are the three basic kinds of privacy that Ess names? (Accessiblity, decisional, and informational).

Why is privacy important? Is it a right? Why?

What are differences between US and European approaches to privacy? US and international?

Agre, P. E. (1994). Surveillance and capture: two models of privacy. The Information Society, 10(2), 101-127.

Contrast the surveillance and the capture models of privacy.

In which of this week's readings did we see surveillance models?

In which of this week's readings did we see capture models?

Can we think of systems that blend both capture and surveillance models? (Facebook?) Or are they always separate?

Bell, G., & Gemmell, J. (2007). A digital life. Scientific American, 58-65.

Would you participate in MyLifeBits? Why or why not? Would you use some of the tools (SenseCam, etc) and not others? What about if your memory was compromised (aging, disease) – does this change things?

What are the goals of MyLifeBits? (Enhancing personal reflection, time management, telling story to descendents). Do the means fit the ends?

What problems do you see with a system like MyLifeBits? Does the article sufficiently address these problems?

Foucault, M. (2002). The Eye of Power: A Conversation with Jean-Pierre Barou and Michelle Perrot. In CTRL [SPACE]: Rhetorics of Surveillance from Bentham to Big Brother (pp. 94-101). Cambridge, MA and London: The MIT Press.

What social domains does Foucault list as having been influenced by the panopticon? (Hospitals, prisons, military school dormitories, manufacturing plants). What other social domains can you think of?

Foucault talks about tension between an open or transparent society (the dream of Rousseau) and a dominant, overseeing gaze. Is it possible to have one without the other? Is the dream of transparency always ultimately one of surveillance?

What does it mean to capture data about ourselves all of the time?
What can we discover from data captured from ubiquitous devices?
What are new applications for this sort of data capture?
What problems might this data raise?
What does it mean for individual and group identity, power and equity, and privacy?

2:50 – 3:00 Break

3:00 – 3:45: Defining terms activity.
Break into groups of four. Each group defines:

Terms: surveillance, capture, privacy,

Each group chooses are reporter to report back. Discuss differences.

3:45: Introduce next week's readings

Readings:
Sismondo, Chapter 8. *This chapter describes Actor-Network Theory, a foundational method of analysis in STS. It's also a unique way of looking at networks and flows.*

Curry, M. R., Phillips, D. J., & Regan, P. M. (2004). Emergency response systems and the creeping legibility of people and places. The Information Society, 20, 357-369. *Curry et al introduce reasons beyond privacy why massive collections of location data might be problematic for society.*

DARPA's Information Awareness Office: http://infowar.net/tia/www.darpa.mil/iao/ *A military project to collect and analyze networks of information*

Khan, V., & Markopoulos, P. (2009). Busy families' awareness needs. International Journal of Human-Computer Studies, 67(2), 139-153. *What can we learn from analyzing our habits and routines?*

Nissenbaum, H. (2009). Chapter 7. *Privacy in Context: Technology, Policy, and the Integrity of Social Life.* Stanford, CA: Stanford Law Books. *A new and important definition of privacy beyond control of one's personal information.*

Assign:
Bell, G. (2006). No More SMS from Jesus: Ubicomp, Religion and Techno-spiritual Practices. In P. Dourish & A. Friday (Eds.), UbiComp 2006: Ubiquitous Computing (Vol. 4206, pp. 141-158).

Chew, M., Balfanz, D., & Laurie, B. (2008). (Under)mining Privacy in Social Networks. In W2SP 2008: Web 2.0 Security and Privacy 2008.

Perusco, L., & Michael, K. (2007). Control, trust, privacy, and security: evaluating location-based services. *Technology and Society Magazine, IEEE*, *26*(1), 4-16. (Don't assign?)

Lesson Plan: Week 3

In-class activities:

1:00 – 1:15
Tech discussion
Yahoo's FireEagle, http://fireeagle.yahoo.net/, RescueTime http://www.rescuetime.com/, Bedpost http://www.bedposted.com/, Outside.in http://blog.outside.in/iphoneapp/

1:15 – 2:15
Discussion of Readings
For Further Investigation:
Alex: Bell, G. (2006). No More SMS from Jesus: Ubicomp, Religion and Techno-spiritual Practices. In P. Dourish & A. Friday (Eds.), UbiComp 2006: Ubiquitous Computing (Vol. 4206, pp. 141-158).

Kanisk: Chew, M., Balfanz, D., & Laurie, B. (2008). (Under)mining Privacy in Social Networks. In W2SP 2008: Web 2.0 Security and Privacy 2008.

Readings:
Sismondo, Chapter 8.

> What's your reaction to non-human actors being able to form associations? Having interests?
>
> How are mobile technology developers acting as "engineer-sociologists?"
>
> If you were to describe the "interests" of mobile phones, what would they be?

Curry, M. R., Phillips, D. J., & Regan, P. M. (2004). Emergency response systems and the creeping legibility of people and places. The Information Society, 20, 357-369.

> What's wrong with sorting people by their geographic movements?
>
> Is discrimination by marketers a bad thing? Or just part of capitalism?
>
> How is Curry's concern different from concerns about privacy?
>
> What is function creep? What are some worries about function creep for the technologies that you're investigating?

Khan, V., & Markopoulos, P. (2009). Busy families' awareness needs. International Journal of Human-Computer Studies, 67(2), 139-153.

> Khan et al list a variety of reasons one might want to use presence awareness techs, including coordination, reassurance, showing identity and showing affection. How do the techs we've talked about so far support these goals?
>
> Did you see any issues with the way that the authors conducted their studies? (Talk about tracking of children in classrooms – this probably doesn't violate contextual integrity, is not likely to raise alarms. Very small sample size.)
>
> Awareness techs as described are not overly technically complicated. Why do you think they're not widely available on the market?

Nissenbaum, H. (2009). Chapter 7. *Privacy in Context: Technology, Policy, and the Integrity of Social Life*. Stanford, CA: Stanford Law Books.

What is contextual integrity?

What are transmission principles?

Describe the context of this classroom.

What are the "scripts"? Practices? Actors? Canonical activities? Transmission principles?

In what other contexts are we nested?

How does all of this affect information flows?

How does contextual integrity avoid the problem of public information vs. private information?

Can you give examples of breaches of contextual integrity?

Does the tech you examined last week violate principles of contextual integrity?

DARPA's Information Awareness Office: http://infowar.net/tia/www.darpa.mil/iao/

2:15 – 2:30 Break

2:30 – 3:15
Small group discussion of case studies – drawn from Perusco. Divide into groups, provide each with a case and discussion questions. Each group must report back with one slide.

What legal issues does the scenario raise?
What ethical issues does the scenario raise?
What social issues does the scenario raise?
What technological issues does the scenario raise?
What risks to individuals does the scenario raise?
What risks to society does the scenario raise?
Where does information flow into new contexts?
What new dimensions does the network of information add to the problem?

3:15 – 3:45 Reports and discussion

3:45 – 3:50 Closing business
Reminder: Abstracts and sample bibliographies due next week! Bring 2 copies to class – we'll be doing a peer review process

Introduce Chris B talk

End of Class: Introduce Readings
Readings:
Sismondo, Chapter 12. *This chapter investigates how social scientists engage in the study of methods and data creation in science and technology building.*

Borgman, C. L. (2007). Data: Input and Output of Scholarship. *Scholarship in the digital age: information, infrastructure, and the internet.* Cambridge, MA and London: The MIT Press.

Corburn, J. (2003). Bringing local knowledge into environmental decision making: Improving urban planning for communities at risk. *Journal of Planning Education and Research*, *22*, 120-133.

Eagle, N. (2008). Behavioral Inference across Cultures: Using Telephones as a Cultural Lens. *Intelligent Systems, IEEE*, *23*(4), 62-64.

Vaidya, J., & Atluri, V. (2008). Privacy, profiling, targeted marketing, and data mining. In *Digital Privacy: Theory, Technologies, and Practices*. New York and London: Auerbach Publications.

Assign: For Further Investigation:

David, S. (2007). Toward participatory expertise. In Structures of participation in digital culture (pp. 176-196). New York: Social Science Research Council.

Elwood, S. (2006). Critical issues in participatory GIS: Deconstructions, reconstructions, and new research directions. *Transactions in GIS*, *10*(5), 693-708.

Gray, J., Liu, D. T., Nieto-Santisteban, M., Szalay, A., DeWitt, D. J., & Heber, G. (2005). Scientific data management in the coming decade. *SIGMOD Rec.*, *34*(4), 34-41.

The Critical Spatial Practice blog: http://criticalspatialpractice.blogspot.com/

Scenarios – Privacy, Networks and Flows
April 13, 2010
IS 98T

All scenarios taken from:
Perusco, L., & Michael, K. (2007). Control, trust, privacy, and security: evaluating location-based services. *Technology and Society Magazine, IEEE*, *26*(1), 4-16.

Scenario 1

Vulnerability - *The Young Lady*
The street appeared to be deserted. Kate wasn't surprised – this part of town always quieted down at night, especially on weekday evenings like this one. There wasn't much around except office buildings and coffee shops that served to provide a steady stream of caffeine to the office workers. Kate fished her smart phone out of the pocket of her grey suit jacket. Pressing a few buttons, she navigated through the on-screen menu to the *Services* option, then to *Call a Taxi*. The device beeped at her, flashing the message: *No signal available.* Kate swore, shoving the PDA back into her bag. The surrounding buildings must have been blocking the GPS signal. She knew she needed to get to a more open area. *What a pain, she thought. They overload me with cases, expect me to stay late, and then the gadget they give me to get home doesn't work.* Although Kate was irritated more than anything else, there was a niggling sort of apprehension in the pit of her stomach. She felt alone – very alone, and not at all comfortable being by herself, at eleven in the evening, in a deserted place. Shaking off the uneasiness, she berated herself. *Get a grip, Kate. You're not a child.* As Kate strode off, a dark shadow detached from a nearby alleyway. It followed, silently, at a distance, keeping out of the dim pools cast by the streetlights. Unfortunately, Kate didn't know which direction she should go to find a clear space for her phone to get a fix on her location. *If I keep heading the same way*, she thought, *I'm bound to find somewhere sooner or later.* The surrounding structures were slightly lower here, the taller office blocks just down the road. As Kate walked, the shadow some way behind flickered in the wind, as though it were wearing a long coat. It followed stealthily, steadily decreasing the distance between itself and Kate. Suddenly, Kate's phone bleeped for attention. Kate pulled it out of her bag again and read the message on the screen: *Signal acquired.* "Finally," she breathed. Quick fingers navigated back to the *Call a Taxi* command. The phone gave a comforting reassurance that a taxi was on its way, with an estimated arrival time of less than a minute. The shadow hung back, unsure, watching. Within thirty seconds of making the call, a taxi veered out of nowhere and pulled to an abrupt stop alongside Kate. She opened the door and slid into the back seat. As the taxi pulled away, the shadow shifted slightly and melted back into the darkness.

Scenario 2

Liberty - ***The Husband and His Wife***

The next day, the sun filtered into an east-facing bathroom window, where a man stood studying himself in the mirror. Slight lines crinkled the skin near his eyes and mouth. His hair was still quite thick and healthy, but flecked with the salt-and-pepper grey of an aging man. Although Colin was well past his sixtieth birthday, he could have easily passed for a man in his fifties. Suddenly, the telephone rang. Colin paused for a moment, listening – the ring only sounded in the bathroom. The kitchen, bedroom, and lounge room were all silent. "Even the damn phone knows where I am," he muttered, shaking his head. He touched the hard lump of the RFID tag that was stitched into the hem of his shirt. "Helen, not again!" Colin stabbed at an unobtrusive button on the bathroom wall, and his reflection instantly gave way to the face of an attractive woman with bobbed blonde hair – Helen, his wife, calling from the airport in Hong Kong. "Oh sweetheart, you look tired." Helen sounded concerned. Colin shrugged. "I don't feel tired. I think I just need to get some fresh air." "Open the window, then. It might make you feel better." Colin thought that what would make him feel better was a nice long walk without his wife checking up on him every five minutes. "You haven't been to the cupboard yet to take your morning medicines," Helen said. "Why don't you stop pussyfooting around and just inject me with one of those continuous drug delivery things?", Colin frowned. Helen smiled. "Great idea," she teased. "We could put a tracking chip in it too. Two birds, one stone". "At least then I wouldn't have to wear this stupid bracelet. They're made for kids, Helen." Colin knew his wife was joking, but the truth was that he often did feel like a recalcitrant child these days. "Well," Helen replied, "If you didn't insist on being so pig-headed, you wouldn't have to wear it. I was terrified when you collapsed. I'm not going to let it happen again. This way I know you're not gallivanting about without someone to look after you." "Ever considered that I can take care of myself? I'm not a child." "No, you're not. And you're not a young man either," Helen admonished. "You need to accept that with your condition, it's just not safe to be going off by yourself. What if something happened to you? Who would know? How would we find you?" "I feel like a prisoner in my own home, Helen. I can't even take the thing off without you knowing about it. You know they use these for prisoners?" "Parolees, dear. And they're anklets." She leaned in closer to the screen. "Someone needs to take care of you, Colin. If you won't, I'll have to do it myself." Colin sighed. "You just don't understand what it's like to be getting… older. Not being able to do everything you used to. Being betrayed by your own body. It's bad enough without you babying me along like some kind of octogenarian invalid." "Well, I guess that's the downside to marrying a woman almost twenty years younger than yourself," Helen grinned. "The only downside." Colin smiled back at her, but his heart wasn't really in it. They had been through this argument countless times before. He changed the subject. "Heard from our dear daughter lately? Or Scott?" "Kate called me last night. She's doing well." "How's her new job?" Colin asked. "Well, she says she enjoys it, but she's working very long hours," Helen replied. "And I bet you're worried about her being alone in the city at night for five minutes," Colin said. Helen gave a self-conscious smile. "It's not a very nice part of town. I'll feel much better about her working late when the firm moves closer to the inner city." "And Scott?" "Haven't heard from him. He's back in Sydney now, though. I wish he'd call." "Maybe if you weren't always pestering him to marry his girl from Melbourne, he'd call more," Colin grinned. Helen glanced up, away from the screen. "Sweetheart, I have to go – they've just given the final boarding call for my flight. Enjoy the rest of your day. I'll see you when I get home tonight." She blew a rather distracted kiss at the screen, then it went blank. Colin's shoulders sagged. Alone again. He shuffled into the kitchen to make breakfast. Helen had left him skim milk and pre-packaged porridge oats. "Wow," he muttered. "Cosmic Blueberry or Bananarama? Such decisions." Just as Colin was finishing off the last few spoonfuls, the watch on his wrist emitted a low beep. He glanced at the screen: *Low battery – critical.* Colin smiled. The device had been flashing

low battery messages intermittently since yesterday evening. It had less than three days' standby time, and being on a business trip, Helen wasn't around to make sure it got recharged. The screen on the little device winked out. Munching on his porridge, Colin reached over to the cutlery drawer and took out the kitchen scissors. Very carefully, he snipped out a neat little rectangle from the hem of his shirt. The RFID tag came with it. He swallowed down the rest of his breakfast and tossed the tag onto the counter. Colin was going for a walk. No alert went out to Helen. No neighbors came hurrying to see what he was doing. He reveled in the possibility of heading out without someone watching his every move. Colin wandered off, his own man, if only for a morning.

Scenario 3

Association - ***The Friends and Colleagues***

"Hey Janet. Sorry I'm late." Scott slid into the other seat at the table. Janet sighed, pushing a latte and a sandwich towards him. She'd already finished her coffee. She gestured to her PDA. "These gadgets do everything. They compare our schedules, pick a place convenient to both of us, make sure there's something vegetarian on the menu for me, and book a table. Pity they can't get you here on time too." "I'm sure it's on the horizon," Scott joked. "So how's life in the Sydney office?" "All right. The weather makes a nice change. How about your parolees?" Scott laughed. "There's a lot more of them. In Melbourne I had fifty or sixty cases at once. Now I've been allocated more than a hundred." He bit into his sandwich. "With less parole officers able to handle more cases, I guess I'm lucky to have a job," he continued with his mouth full. Janet raised her eyebrows. "With a lot of women intolerant of bad table manners, you're lucky to have a girlfriend. I assume the workloads are greater because they use those chips here?" "The caseload is greater, the workload is the same – yeah, because of the chips". He smiled. "It's crazy that New South Wales is already trialing these tracking implants, while Victoria's only recently got a widespread implementation of the anklets. They've been around commercially for years. Mum's got Dad wearing a tracking watch now, for peace of mind after the whole angina scare. "But the implants are much better," Scott continued. "Who wants a chunky anklet or bracelet that makes you look like a collared freak? I'll bet it's really disconcerting having people stare at you suspiciously in the street, knowing that you're a criminal. It kind of defeats the purpose of parole – the idea is rehabilitation, reintegration under supervision. That's why the implants are so good – there's no stigma attached. No one can even tell you have one. And they're harder to remove, too." "I don't see what the big deal is," Janet replied. "Why not just keep people under lock and key?" "Resources. It costs a lot to keep someone imprisoned, but the cost drops significantly if you imprison them in their own home instead. It's about overcrowding, too – jails everywhere have had an overcrowding problem for years. "I also think electronic monitoring and parole are much better in terms of rehabilitation," Scott went on. "People can change. Often they've committed a fairly minor crime, then they go to prison, get mixed up with worse crowds. It can be pretty rough in there. There is certainly a danger that by imprisoning people with 'harder' criminals, you run the risk of corrupting them further and exacerbating the problem. "On parole, they can still go to work and earn money, be productive members of society, get their lives back. But they're watched, very closely – the tracking systems alert us if anything looks off. It's imprisonment without prisons." Janet smiled. "That's very *Alice in Wonderland*. When the Cheshire Cat disappears – how does it go? 'I've often seen a cat without a grin, but a grin without a cat is the most curious thing I ever saw in all my life!'" Scott laughed. "I suppose you could compare it to that." He noted Janet's skeptical look. "It's not like we're sending people out of jails willy-nilly. There is a pretty thorough system in place to determine who gets paroled and who doesn't."

"So how does that work?" asked Janet. "Well, a while ago it was mainly based on crime-related and demographic variables. We're talking stuff like what sort of offense they're doing time for, the types of past convictions on their record, age, risk of re-offending". She nodded. "Now a bunch of other things are looked at too," he continued, finishing off his sandwich. "It's a lot more complex. Psychological factors play a big part. Even if someone displays fairly antisocial traits, they're still considered pretty low risk as long as they don't also show signs of mental illness". "So prisons are the new asylums?" Janet frowned. "Not quite but I see your point," Scott admitted. "What about terrorists?" Janet argued. "How can you guarantee that there won't be another incident like the Brisbane rail bombings"? "Like I said, anyone considered really dangerous is still kept in a regular prison," Scott said. "All the major landmarks and places people congregate in Sydney are tagged anyway. There's no way a convicted terrorist would get within a hundred meters of anything worth

attacking." Janet raised her eyebrows, unconvinced. She thought of the newspaper reports about security breaches of public places that had been linked to professional cybervandals. As far as she was concerned, no new technology was the silver bullet. Scott continued, "And you know that governmental powers now allow 'persons of interest' to be implanted as well." Janet shook her head. "I'm all for preventing terrorist attacks. But implanting people who haven't committed a crime? How far will they take it? What if the government decided that they should just track everyone, to be on the safe side?" Scott shrugged. "I guess we just need to find a nice balance between personal freedom and national security." He glanced at his watch and pushed his chair back. "I need to get back to work," he said apologetically.

Scenario 4

Policing - ***The Officer and the Parolee***

Scott paused on the landing in front of Doug's apartment and steeled himself. Doug was his last visit of the day. Scott was a fairly likeable guy and had a rapport with most of his cases, but Doug, convicted of aggravated sexual assault, was different. Scott knocked on the door. A few seconds passed, then it opened a fraction and a stubbled face peered out. Doug wore a stained long-sleeved shirt and ratty jeans. "Scott," he sneered. "So nice of you to drop by." "Let's just do this, Doug." Scott followed Doug into the living room. He pulled out a small device and waved it up and down the man's left arm. It beeped and Scott checked the screen. "Your chip seems fine," he said. "Just a routine check – we like to do one every now and then to make sure everything's okay. Congratulations on your new job, by the way. How do you like house painting?" "My true bloody calling," Doug leered. "Er… great. Keep it up then. With good behavior like this you'll be done in no time." Scott felt relieved that he would no longer have to sift through Doug's daily tracking logs. Doug just smiled.

Scenario 5

Duplicity - ***The Victim***

Doug waited more than two hours after Scott left before removing his shirt. He peeled off the electrical tape covering an ugly, ragged scar on his upper arm. The scar wasn't from the chip's implantation. It was created by the deep cut Doug's heavily pierced cyberpunk friend had made to remove it. The tiny chip – smaller than a grain of rice – was stuck to the back of the tape. Gingerly, Doug set it on the table in front of the TV and smiled. His chip was having a night in. He was going out. Doug pulled his shirt back on and shrugged into a long coat. He knew there would be a young woman in a grey suit leaving her office soon. She worked at the law firm that was hot stuff in the news. *Stupid really*, he thought, *that she's not afraid to wander the streets in that part of town at night, alone. A Smart girl like that should know better*. The stairwell was quiet. He slipped out into the darkness, a shadow among the other shadows. He wanted to pay that attractive little lawyer a visit before she caught her taxi home.

Lesson Plan: Week 4

1:00 – 1:45: Chris Borgman talk and discussion

1:45 – 2:00 Break

2:00 – 3:00 Discussion of readings
Mobile sensing produces more data than a human can easily parse. Sensors might collect hours of latitude and longitude readings. These data streams must be interpreted using calculations, models, maps, and other techniques. This week's readings discuss tools and techniques for making these interpretations and drawing sense from copious data. They also explore whether data interpreted through models ever be *objective*, or whether making sense of data depends upon points of view, standpoints, and social or political contexts.

Applications:

Your Street http://www.yourstreet.com/, Datascape http://e.fluxt.com/datascape/, MIT Reality Mining visualizations http://reality.media.mit.edu/viz.php, Bricolage Labs http://www.bricolagelabs.com/. The Critical Spatial Practice blog: http://criticalspatialpractice.blogspot.com/

Readings:

Jennifer: David, S. (2007). Toward participatory expertise. In Structures of participation in digital culture (pp. 176-196). New York: Social Science Research Council.

Russell: Elwood, S. (2006). Critical issues in participatory GIS: Deconstructions, reconstructions, and new research directions. *Transactions in GIS*, *10*(5), 693-708.

Sismondo, Chapter 12.

> What's the difference between absolute objectivity and formal objectivity?
>
> Is either achievable?
>
> What is expertise in science?
>
> What is local knowledge?
>
> How is standardization opposed to local knowledge?

Borgman, C. L. (2007). Data: Input and Output of Scholarship. *Scholarship in the digital age: information, infrastructure, and the internet.* Cambridge, MA and London: The MIT Press.

> Difference between large data sets (automatic sensors, scientific instruments, some participatory sensing) and small data sets (individuals answering surveys, e.g. wellness campaigns). Does this affect relevance of sharing data?
>
> What are the tensions in sharing personal (human subjects) data for scholarly research?
>
> Trust in citizen science or user-gathered data seems like a hugely problematic issue. What do you see replacing processes like peer review?

Corburn, J. (2003). Bringing local knowledge into environmental decision making: Improving urban planning for communities at risk. *Journal of Planning Education and Research*, *22*, 120-133.

What is the difference between local knowledge and professional knowledge?

How does local knowledge augment professional knowledge?

In what ways can researchers access or collect local knowledge?

What mobile technology tools take advantage of local knowledge?

Eagle, N. (2008). Behavioral Inference across Cultures: Using Telephones as a Cultural Lens. *Intelligent Systems, IEEE*, *23*(4), 62-64.

What do Eagle et al believe can be learned from collecting mobile phone data?

What's the difference between the datasets that Eagle is interested in and the data that Corburn is interested in?

Vaidya, J., & Atluri, V. (2008). Privacy, profiling, targeted marketing, and data mining. In *Digital Privacy: Theory, Technologies, and Practices*. New York and London: Auerbach Publications.

What is data mining?

What is privacy-preserving data mining?

Can data ever be *objective*?
In a world of mobile technologies, who are experts?
And how is expertise shaped by access to data?

3:00: Peer review of abstracts

3:45: Introduce next week's readings
Readings:
Bannon, L. (2006). Forgetting as a feature, not a bug: the duality of memory and implications for ubiquitous computing. CoDesign, 2(1), 3-15.

Blanchette, J., & Johnson, D. (2002). Data retention and the panoptic society: the social benefits of forgetfulness. *The Information Society*, *18*(33-45).

Borges, Jorges Luis. Funes the Memorious.

Capurro, R. (2006). Intercultural Information Ethics. In *Localizing the Internet. Ethical Issues in Intercultural Perspective*. ICIE Series Vol. 4: Fink.

For Further Investigation:

Assign: Ketelaar, E. (2005). Recordkeeping and societal power. In Archives: Recordkeeping in Society (pp. 277-298). Wagga Wagga, New South Wales, Australia: Centre for Information Studies, Charles Stuart University.

Next Step for Papers: Bring an outline to peer-review in class. (Ungraded, but I will review). Due Week 6 – 5/4/10. I've edited the course site and the syllabus to reflect this.

Lesson Plan: Week 5

1:00 – 1:05 Hand back papers. General comments:

- Hand out surveillance abstract & outline
- Need to include more readings from the class. How do concepts like contextual privacy, forgetting, intercultural information ethics relate to the technology you're examining? Apply the concepts we're learning to help you evaluate the technology.
- Pay attention to clear writing. Shorter sentences are better when you're writing a persuasive essay.
- These technologies have politics. What's controversial about them? Talk about that.

1:05 - 2:15 Discussion of readings

Kanisk: Ketelaar, E. (2005). Recordkeeping and societal power. In Archives: Recordkeeping in Society (pp. 277-298). Wagga Wagga, New South Wales, Australia: Centre for Information Studies, Charles Stuart University.

Bannon, L. (2006). Forgetting as a feature, not a bug: the duality of memory and implications for ubiquitous computing. CoDesign, 2(1), 3-15.

> Why does Bannon purport that forgetting is as important as memory?
>
> What's wrong with the analogy that posits that the human brain is like a computer?
>
> When and why might we want a fresh start? When are we hampered by memory? (Having Facebook follow you to college…?)

Blanchette, J., & Johnson, D. (2002). Data retention and the panoptic society: the social benefits of forgetfulness. *The Information Society*, *18*(33-45).

> What are the social benefits of privacy?
>
> What does Blanchette argue are the social benefits of forgetfulness?
>
> What structures for forgetting already exist?
>
> What additional structures are needed?

Borges, Jorges Luis. Funes the Memorious.

> What does Borges' description of Funes' memory remind you of? (Analogies to problems of information overload, early days of the Web without Google to sort…)
>
> Discussion of Funes' problem as real psychological problem.

Capurro, R. (2006). Intercultural Information Ethics. In *Localizing the Internet. Ethical Issues in Intercultural Perspective*. ICIE Series Vol. 4: Fink.

> What is Capurro's goal in putting together this essay?
>
> What differing points of view does he present? (Ess, Zen scholarship, flourishing ethics, local analyses)

2:15 – 2:30 Break

2:30 – 2:40 Play RadioLab clip – "Limits" (33:15-37:55, 45:55-50:06).

2:40– 3:30 Activity: What do we want forgotten? Introduce with two examples of memory: Show Hans page (good memories); and Katie Shilton page (maybe not…)

Gather in pairs or threes, one laptop each. Scan google searches, facebook pages, hard drives, browser histories for things you'd want remembered and forgotten. Some good sites to visit: www.whattheinternetknowsaboutyou.com, www.spokeo.com, zesty.ca/facebook, www.zabasearch.com.

Create a 5-minute presentation about your group's experience with remembering and forgetting.

3:30 Introduce next week's readings

Readings:
Sismondo, chapter 15. *This chapter explores the public perception of science and technology. Public perception of science and technology is of critical importance to policymaking and laws that promote and regulate technological development.*

Cohen, J. E. (2008). Privacy, Visibility, Transparency, and Exposure. *University of Chicago Law Review*, *75*(1).

Waldo, J., Lin, H. S., & Millett, L. I. (2007). Chapter 4: The Legal Landscape in the United States. *Engaging privacy and information technology in a digital age*. Washington, D.C.: The National Academies Press.

Weitzner, D. J., Abelson, H., Berners-Lee, T., Feigenbaum, J., Hendler, J., & Sussman, G. J. (2008). Information accountability. *Communications of the ACM*, *51*(6), 82-87.

3:35 – 3:45 Midterm evaluations

Lesson Plan: Week 6

1:00 – 1:15 – Techs of the week

Respect My Privacy: http://dig.csail.mit.edu/2009/SocialWebPrivacy/ - Accountability tech from DIG

CitySourced/Garcetti 311 http://www.citysourced.com/

1:15– 2:15 Discuss readings

Sismondo, chapter 15. *This chapter explores the public perception of science and technology. Public perception of science and technology is of critical importance to policymaking and laws that promote and regulate technological development.*

> What is the "dominant model" of public understanding of technology?
>
> What is the "deficit model"?
>
> What are criticisms of the dominant model? The deficit model?
>
> How does the dominant model that Sismondo describes affect technology policy?
>
> How does the deficit model manifest in technology policy? (Share Boing Boing example)

Waldo, J., Lin, H. S., & Millett, L. I. (2007). Chapter 4: The Legal Landscape in the United States. *Engaging privacy and information technology in a digital age*. Washington, D.C.: The National Academies Press.

> How might the 4th Ammendment right to privacy affect mobile technologies? (Protects home, papers, property. Might protect seizure of mobile phone records.)
>
> What's missing from constitutional protections of privacy? (Comprehensive protection from corporations).
>
> Torts are designed to help with protection against individuals, corporations. But what's missing from the four privacy torts? (Definitions of 'public' disclosure in the information age).
>
> What federal laws discussed by Waldo et al affect mobile technologies? (Electronic Communications Privacy Act, maybe Video Protection Act, Children's Online Privacy Protection Act.)
>
> What examples from popular perceptions of technology do you see reflected in privacy law? (Piecemeal federal and state laws are a reaction to public perceptions of tech, e.g. Video Privacy law, celebrity health records in CA).
>
> Present warrantless wiretapping case.

Cohen, J. E. (2008). Privacy, Visibility, Transparency, and Exposure. *University of Chicago Law Review*, *75*(1).

> What does Cohen think is missing from the discussion about privacy law?
>
> Why is the concept of space important to Cohen's argument? ("By analogy to the home, we might envision a zone of personal space that permits (degrees of) unconstrained, unobserved physical and intellectual movement. That zone furnishes room for a critical, playful

subjectivity to develop. This account of spatial privacy matches the experience of privacy in ways that the purely informational conception does not." p 13-14)

How does surveillance exposure affect our online experience?

Weitzner, D. J., Abelson, H., Berners-Lee, T., Feigenbaum, J., Hendler, J., & Sussman, G. J. (2008). Information accountability. *Communications of the ACM*, *51*(6), 82-87.

What is different or unique about the argument that Weitzner et al are making?

What policy is needed to make information accountability work?

What technology is needed to make information accountability work?

What would information accountability look like for the data collected by mobile technologies? Think about how this principle would apply to the technology you're studying.

2:15 – 2:30 Break

2:30 – 3:30 Debate

Pro and con – **The U.S. government should pass a law that states that anyone who collects personal information from mobile technology users must provide an interface through which users can view, edit, and delete that information.**

Each team must prepare three pro or con arguments. Each argument must contain an assertion plus evidence. The evidence can consist of a theory, concept, or study from our textbook or class discussions that supports the assertion's validity.

During the debate each side will take its turn presenting arguments. Students volunteer to speak on behalf of their side, and others volunteer to offer additional support. After one side has presented an argument, students from the other side may challenge it, and students from the first side may respond as appropriate. This "argument followed by free discussion" procedure is repeated four times (pro, con, pro, con).

I will record all arguments on the chalkboard or overhead transparency.

At the end of the debate, we'll engage in reconciliation. Students drop their advocacy of one position and reconvene in their groups for 10 minutes. Their task is to examine all of the arguments we have discussed, and to discover values that people hold regardless of their specific position. Then, we reunite as a large group to propose solutions that reflect those common values and might be agreeable to both sides.

Ask: did anyone change their opinions as a result of the debate? Does anyone hold a stronger or weaker version of their original opinions?

3:30 – 3:45 Peer review of paper outlines

Hand out grading expectations sheet

3:45 – 3:50 End of Class: Introduce Next Week's Readings

Readings:

Sismondo, Chapter 10. *This chapters present taspecific modes of study in STS: the practice of studying laboratories (scientific labs, but also design labs). This kind of studies can inform ethics, or the topic of "what should we do?"*
Ess, Chapter 6. *This chapter presents some ethical frameworks which we can use to analyze social problems engendered in location-based technologies and seek solutions.*
Bellotti, V. (1998). Design for privacy in multimedia computing and communications environments. In Technology and privacy: The new landscape (pp. 63-98). Cambridge, MA and London: The MIT Press.
Friedman, B., Kahn, P. H., & Borning, A. (2006). Value sensitive design and information systems. In D. Galletta & P. Zhang (Eds.), Human-Computer Interaction and Management Information Systems: Applications (Vol. 6). New York: M.E. Sharpe.
Nissenbaum chapter 8

It's a lot of reading this week, and I know you have papers due. So, if you have to skip an article or two, skip the Bellotti and Friedman – and then READ THEM NEXT WEEK. This week, you'll need the Nissenbaum for our in-class activity.

Assign:
Kensing, F., & Blomberg, J. (1998). Participatory Design: Issues and Concerns. Computer Supported Cooperative Work (CSCW), 7(3), 167-185.
Suchman, L. A. (2002). Practice-Based Design of Information Systems: Notes from the Hyperdeveloped World. The Information Society, 18(2), 139-144.

Reminder – Group Papers due next week!

Debate structure suggested by:
Watters, B. L. (n.d.). Attacking Ideas, Not People: Using Structured Controversy in the College Classroom. Retrieved May 1, 2010, from http://teaching.uchicago.edu/pod2/pod2/95-96/Attackingideas.html

Lesson Plan: Week 7

1:00 – 1:15 Techs of the Week

Track Me Not

other Nissenbaum techs?

1:15 - 2:15 – Discuss readings

Research into decision-making in design is starting to suggest tools and techniques for influencing the design process. This week's readings and discussion will take the topics we have covered so far and ask what designers and non-designers alike might do to build socially responsible sensing and location-based technologies. How do designers make decisions about tradeoffs between accuracy and privacy, ease of use and informed consent, or speedy design and involving users? How can non-designers be influential in this process?

Readings

Sismondo, Chapter 10.

> What is ethnography?
>
> Why is ethnography used to study laboratories?
>
> What might we learn about technology design by studying laboratories?

Ess, Chapter 6.

> What is a consequentialist view of ethics? (This is what many of you were employing in debate paper. But the challenge is – how do we weigh or measure cost? Benefit?)
>
> What is deontology?
>
> What are some "basic rights" affected by mobile technologies?
>
> What is ethical pluralism?
>
> How does ethical pluralism apply to privacy?
>
> What are virtue ethics?
>
> How are Confucian ethics related to, or different from, virtue ethics? The idea of Ubuntu?

Bellotti, V. (1998). Design for privacy in multimedia computing and communications environments. In Technology and privacy: The new landscape (pp. 63-98). Cambridge, MA and London: The MIT Press.

> How does Bellotti define privacy?
>
> How are Bellotti's "media spaces" similar to mobile sensing technologies? How are they different?
>
> On what design principles does Bellotti focus? (Feedback and control)
>
> How does the RAVE system accomplish each principle?
>
> What dimensions of data is Bellotti concerned about? (Capture, construction, accessibility, purpose).

Friedman, B., Kahn, P. H., & Borning, A. (2006). Value sensitive design and information systems. In D. Galletta & P. Zhang (Eds.), Human-Computer Interaction and Management Information Systems: Applications (Vol. 6). New York: M.E. Sharpe.

> What is value sensitive design?
>
> How do you practice value sensitive design? (Conceptual investigations, empirical investigations, technical investigations).
>
> Note that they may want to refer back to Friedman's heuristics when they do their design activity next week.

Nissenbaum, H. (2009). Chapter 8. *Privacy in Context: Technology, Policy, and the Integrity of Social Life*. Stanford, CA: Stanford Law Books.

> What are the problems with contextual integrity?
>
> What are the benefits of a conservative moral philosophy?
>
> How do you evaluate the morality of new technologies under contextual integrity?

2:15 – 2:30 Break

2:30 – 3:30 Contextual Integrity Activity

Contextual integrity design activity: Divide into groups. Each group chooses a pervasive tracking technology or location-based technology. Each maps the:

- Contexts
- Norms
- Actors
- Attributes (Information types)
- Transmission Principles

according to Nissenbaum's model. Then ask: is the new situation enabled by the tracking technology *better*? Why or why not?

3:30 – Group Presentations

3:45 – Discuss next week.

Lesson Plan: Week 8

1:00 – 1:05 Comments on group papers

1:05 – 3:30 Group Design Activity

Imagine what could be – envisioning your own location-based technology.

Break into groups of 3. Each group draws two cards: an application type and a value. The task is to design a technology that emphasizes the given value. Students are given instructions of system features to draw, as well as questions to answer in writing. Students will prepare to present the tech at the end of class. (See Directions for Design Activity).

Students are to create a plan for their technology. They should defend how the technology is useful, ethical, and interesting.

2:15 – 2:30 Break

2:30 – 3:30 Continue Design

After the break, students are given one last card – a community card. The students should now tweak their application for the given community.

3:30 – 3:45 Class presentations

3:45 End of Class: Introduce Next Week's Readings

Readings:

Anthony, D., Kotz, D., & Henderson, T. (2007). Privacy in location-aware computing environments. *Pervasive Computing*, *6*(4), 64-72.

Byrne, E., & Alexander, P. M. (2006). Questions of ethics: Participatory information systems research in community settings. In *SAICSIT* (pp. 117-126).

Shilton – Four Billion Little Brothers.

Assign:

Iachello, G., Truong, K. N., Abowd, G. D., Hayes, G. R., & Stevens, M. (2006). Prototyping and Sampling Experience to Evaluate Ubiquitous Computing Privacy in the Real World. In 2006 SIGCHI Conf. Human Factors in Computing Systems (CHI 06) (pp. 1009–1018). Montreal, Canada: ACM Press.

Medina, E. (2006). Designing freedom, regulating a nation: socialist cybernetics in Allende's Chile. Journal of Latin American Studies, 38, 571-606.

Community mapping technology	**Environmental application**
Self-tracking technology	**Crisis or problem reporting**
Shopping technology	**Ambient awareness application**
Participant control of data	**Participation**
Data legibility	**Forgetting**
Parsimony/minimal data collection	**Anonymity**
Children	**College students**
The elderly	**Young urban professionals**
Political activists	**Families**

Directions for Design Activity

Draw:
Where is the data collected?
Where is it stored?
Where is it processed?
Where do users view the results? Draw the connections.
What does the user interface look like? What can users see? What can they manipulate?
What does your system look like in use? Where is it used? How?

Write:
Why is your system useful?
What does it do?
How does it work?
What data is captured?
How is it processed?
Who is the data accessible to?
What is the data's purpose?
How do users interact with the system?
In what setting will your system be used?
Who has access to the data your system collects?
Would you mash up your service with existing services, such as Facebook?
How are you funding your service?
What legal guidelines apply to your technology?
How is it an improvement over what's already available?
How does your technology emphasize the value you received?
How did introducing a specific user group change your plans?

Plan:
How would you ensure your technology was accepted/acceptable by users?
What questions would you want to ask users?
Research the marketplace – who would you target your application for?
If you had more time, how would you incorporate users into your design process?

Lesson Plan: Week 9

1:00 -3:45 – Discuss reading

What are the next steps for the design and implementation of responsible sensing technologies? How do we create technology or laws that respond to social problems with unique solutions? What are the roles of technical solutions, and what will require policy interventions? This week's readings will suggest both scholarly and fictional imaginings of solutions to many of the data dilemmas we have discussed thus far.

Readings:

Anthony, D., Kotz, D., & Henderson, T. (2007). Privacy in location-aware computing environments. *Pervasive Computing*, *6*(4), 64-72.

> How did the Anthony study proceed?
>
> What is experience sampling?
>
> How do the authors define "place"? (geographic location, material form, and cultural meaning.)
>
> What are the limitations of Anthony's methods?
>
> How do the opinions reflected by users in the Anthony study reflect contextual privacy? How do they perhaps deviate from contextual privacy?
>
> How might Anthony et al's findings inform design of location-based technologies?

Byrne, E., & Alexander, P. M. (2006). Questions of ethics: Participatory information systems research in community settings. In *SAICSIT* (pp. 117-126).

> What is participatory design?
>
> Why might participatory techniques be important in the design of mobile and location-based technologies?
>
> How are traditional research ethics applicable to mobile and location-based technologies? What about participatory research ethics?

Shilton – Four Billion Little Brothers

> What is participatory sensing?
>
> What social problems are new to mobile and location-based technologies?
>
> What does it mean to participate in privacy?
>
> What mechanisms have we seen that support participant primacy?
>
> What mechanisms have we seen that support data legibility?
>
> What mechanisms have we seen that support longitudinal engagement?

3:45 – Final paper details

Turn in final papers next week. Paper copy in class, plus email the file to me. I will send an email when the papers are graded and will leave them at the desk in GSEIS for you to pick up.