

FIS2241H
Critical Making: critical information studies meets design-oriented research
Winter 2009

Instructor Information

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Schedule: TBA

Course Description

The focus of this class is on evaluating and exploring current critical themes in Information Studies through both literature and hands-on work. The course is organized around values that have been identified as key in regards to the design and implementation of socially and culturally sensitive information systems, in particular the values of privacy, autonomy, community, democracy, and social justice. Using design-based research on physical computing as an adjunct to critical scholarship in this area, we will explore how these values are expressed, debated, and resisted within the development and use of information systems. The class has three goals:

- to critically explore the social issues inherent in technical systems;
- to acquaint students with some of the possibilities and problems of new physical and ubiquitous information technologies;
- third, to help them develop basic skills in designing, making, and evaluating information systems that use these new technologies.

The class is designed as a combination of seminar and lab. We will meet 3 hours a week, with the first 1 ½ hours devoted to lecture and discussion of course themes and readings. The second 1 ½ hours will involve hands-on work involving the design and construction of physical computing systems.

Please note: No previous technical knowledge is required to take this course. While we will be engaging in project work that involves basic programming, electronic circuitry, and technical design, the course will provide tutorials and assistance in these areas. Students will be expected to work on projects within and outside of class hours and to develop some skills in these areas. **Students with little**

or no technical background but with an interest in developing basic skills are encouraged to attend.

Assignments

Course deliverables include written work that reflects on course readings and lectures and technical projects. These projects involve the joint design and creation of physical computing artifacts or systems that a) provides resources for thinking and reflecting on the tropes, themes, and social values described in the class, or b) intervene in existing social systems in a way that calls attention to tropes, themes, and social values described in the class.

Students will be graded on 5 assignments; two 4-5 page reflection papers that address key issues raised in the course readings, lectures, and project work (20% each); the successful completion of the weekly group projects (20%); a group final project (20%); and an individually-written 10 page paper (20%).

Assignment	Due	%	Group grade?
Reflection paper 1	Week 4	20%	NO
Reflection paper 2	Week 10	20%	NO
Weekly Project	weekly	20%	YES
Final Project	Week 14	20%	YES
Final Paper	Week 14	20%	NO

Group Projects

The first three weekly projects are intended to familiarize students with the basic technologies of physical computing. In these initial sessions students will experiment with basic programming and setup of the software and hardware environment (week 1), use of sensors and actuators (week 2), and serial communication between devices (week 3). In the projects following these initial sessions, students will construct a specifically biased electronic voting system of their own design (week 4 and 5), a physical analogue to digital rights management systems (week 6 and 7), and a wearable device that extends the human body (week 8 and 9). The remainder project time will involve the development and creation of a final project that either extends earlier work or takes course themes in a new direction.

Group Dynamics

It is expected that students will self-organize into groups that leverage the skills and expertise that each student brings to the course. To assist with this process, we will devote class time during the first week to sharing backgrounds and setting up associations. Problems with group dynamics that emerge during the course will be addressed at the discretion of the instructor.

Space

The course will take place in the Critical Making lab, a shared space for opening up the practice of experimentation with embedded and material digital technology to students and faculty in the Faculty of Information. The lab provides tools, materials, and training for building devices such as wearable computers, RFID systems, ubiquitous computing networks, and other physical computing technologies. The lab will also be available at select times for students to do project work outside course hours.

Readings

Required book: Igoe, Tom. 2007. Making Things Talk: Practical Methods for Connecting Physical Objects. Make Books, September 28.

All other readings will be available in electronic form on the web or on the course Sakai site.

Guest lectures from professionals or faculty with specific expertise will be scheduled throughout the term.

Schedule

Week 1 (Jan 5-9): SECTION I: Introduction: themes, materials, and tools

Readings:

Feenberg, A. (2002) Transforming Technology: A Critical Theory Revisited (New York: Oxford. Chapter TBD

Fallman, Daniel. 2007. Why Research-Oriented Design Isn't Design-Oriented Research: On the Tensions Between Design and Research in an Implicit Design Discipline. Knowledge, Technology & Policy 20, no. 3 (October 1): 193-200.

Igoe, Tom. 2007. Making Things Talk: Practical Methods for Connecting Physical Objects. Make Books. Preface and Chapter 1.

Week Project: Blinky-blinky – Hello World of physical computing.

Week 2 (Jan 12-16): SECTION I: Introduction: Social Values and Technology

Readings:

Latour, Bruno (1988): Mixing humans and non-humans together: the sociology of a door-closer. In Social Problems, 35 (3) p. 298–310.

Flanagan, Mary, Daniel Howe, and Helen Nissenbaum. 2008. "Embodying Values in Technology: Theory and Practice." In Information Technology and Moral Philosophy, edited by Jeroen van den Hoven, and John Weckert, Cambridge University Press.

Igoe, Tom. 2007. Making Things Talk: Practical Methods for Connecting Physical Objects. Make Books. Ch.2 & 3.

Week Project: Sensors and actuators: an introduction

Week 3 (Jan 19-23): SECTION I: Introduction: Critical Information Studies/Critical Design

Readings

- Agre, P. (1997) Toward a Critical Technical Practice: Lessons Learned in Trying to Reform AI, in Geof Bowker, Les Gasser, Leigh Star, and Bill Turner, eds, Bridging the Great Divide: Social Science, Technical Systems, and Cooperative Work, Erlbaum.
- Gaver, Bill (2008) Designing for Homo Ludens (Still), revised version of article, originally published in I3 Magazine No. 12, June 2002.
- Igoe, Tom. 2007. Making Things Talk: Practical Methods for Connecting Physical Objects. Make Books. Ch. 4

Week Project: Serial Communication and networks

Week 4 (Jan 26-30): SECTION II: Institutions: Systems, Control, infrastructure

Readings:

- Eglash, R. (2004) "Appropriating Technology: An Introduction", in R. Eglash, J. Croissant, G. Di Chiro, and R. Fouche (eds.) Appropriating Technology: Vernacular Power. Minneapolis: University of Minnesota Press.
- Hughes, T. P. (2004). Human-Built World: How to Think about Technology and Culture. Chicago, University of Chicago Press. Ch. 4 (77-110)

Week Project: Voting System I

Week 5 (Feb 2-6): SECTION II: Institutions: Designing Democracy

Readings:

- Stark, Elizabeth. Semiotic democracy and cultural transformation (or) the transformative power of semiotic democracy, (<http://www.re-public.gr/en/?p=102>)
- Katyal, S. (2004) Privacy vs. Piracy. Yale Journal of Law and Technology 7:222.
- Dunne, A. (1999) Hertzian Tales. Cambridge, MA: The MIT Press, Ch. 1 "Electronics as the Post-Optimal Object".

Week Project: Voting system II

Week 6 (Feb 9-13): SECTION II: Institutions: Digital Rights (management)

Readings:

- Gillespie, T. (2006) "Designed to 'Effectively Frustrate': Copyright, Technology, and the Agency of Users." New Media & Society (v8n4, August 2006): 651-669.
- Samuelson, P. (2003) 'Digital Rights Management {and, or, vs.} the Law', Communications of the ACM 46(4): 41-45.
- Igoe, Tom. 2007. Making Things Talk: Practical Methods for Connecting Physical Objects. Make Books. Ch. 4

Week Project: Physical DRM system I (RFID)

Week 7 (Feb 16-20): READING WEEK

Week 8 (Feb 23-27): SECTION III: Communities: Ubiquitous Computing I: Surveillance & Privacy

Readings:

Weiser, M. 1991. The Computer for the 21st Century. *Scientific American*, 265(3), 94-104.

Bell, Genevieve, and Paul Dourish. 2007. "Yesterday's tomorrows: notes on ubiquitous computing's dominant vision." *Personal Ubiquitous Comput.* 11(2):133-143.

Something by Andrew on RFID

Project: Physical DRM system II(RFID)**Week 9 (Mar 2-6): SECTION III: Communities: Social capital, communities, and technology**

Zurlo, F., Apolloni, G., Castelli, A. The "everyday feature" of designing: The project in terms of a new social capital, <http://www.re-public.gr/en/?p=342>

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends": Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, 12(4), article 1. <http://jcmc.indiana.edu/vol12/issue4/ellison.html>

Project: Final Project I**Week 10 (Mar 9-13): SECTION IV: Selves: Ubiquitous Computing II: Spatiality and Selves****Readings:**

Phillips, David (in press) "Ubiquitous Computing, Spatiality, and the Construction of Identity: Directions for Policy Response," in Ian Kerr, Valerie Steeves and Carole Lucock (eds.), *Privacy, Identity and Anonymity in a Network World: Lessons from the ID Trail*. New York: Oxford University Press. (in press)

DiSalvo, C. (2008) paper on canary system from PDC 2008 proceedings

Project: Extending the body (wearables I)**Week 11 (Mar 16-20): SECTION IV: Selves: Bodies and Technology I**

Last date to drop class: Feb 27

Readings:

Lenoir, T. (2006) Foreword in Mark Hansen, *New Philosophy for New Media*. The MIT Press.

Viseu, A. (2003). Simulation and Augmentation: Issues of Wearable Computers. *Journal of Ethics and Information Technology*, 5 (1), 17-26.

Project: Extending the body (wearables II)**Week 12 (Mar 23-27): SECTION V: Methods and methodologies : Redesigning the Link between Critical Information Studies and Critical Design I.****Readings:**

Schön, D. (1987) "Educating the Reflective Practitioner", presentation to the 1987 meeting of the American Educational Research Association, Washington, DC online at <http://educ.queensu.ca/~russellt/howteach/schon87.htm>

Boehner, K., Vertesi, J., Sengers, P., and Dourish, P. (2007) "How HCI Interprets the Probes." In Proc. CHI 2007.

Project: Final Project II

**Week 13 (Mar 30- Apr 3): SECTION V. Methods and methodologies:
Redesigning the Link between Critical Information Studies and Critical Design II.**

Readings:

Latour, B. (2008) A Cautious Prometheus? A Few Steps Towards a Philosophy of Design (with Special Attention to Peter Sloterdijk). Keynote lecture, Networks of Design, Falmouth, Cornwall, Sep. 3, 2008.

Vaidhyathan, S. (2006) Afterword: Critical Information Studies: A Bibliographic Manifesto, Cultural Studies, 20(2-3):292-315.

Project: Final Project III

EXAM Week (Apr 6-10): Final Projects

No readings

Class show and poster session - Location and time: TBD