

Winter 2014 / Tu&Th 1:15–2:30pm / Harris Hall xxx

History 300: Computers, Information, and Twentieth Century Society

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If we take seriously the notion, foundational to the history of technology, that the things that human beings build matter—that the vast technological systems that we construct to understand and manipulate our environment both reflect our social, economic, and political values, and constrain them—then it is absolutely essential that we understand how these systems get built, by whom, and for what purposes.

-Nathan Ensmenger, *The Computer Boys Take Over*

Course Description and Objectives

Media commentators, politicians, and social theorists often claim that we are living in “the information age,” arguing that our work habits, leisure time, political processes, and even our romantic lives are increasingly guided and defined by algorithms, hardware, and code. Despite the incredible power they are acknowledged to have over our lives, however, computers are often portrayed as being fundamentally asocial and apolitical things. The reputation of computers as cold, calculating, value-free objects is pervasive in media representations and in political discourse. This course explores the social history of computers and information technology, paying close attention to how political values and economic considerations have been embedded into the seemingly neutral standards, protocols, and architectures that undergird the digital world. At the same time, this course will thematically examine the impact of computers—both as instruments and as symbols—on society, examining the ways information technologies have spawned new ideologies, generated new organizational configurations, and guided markets.

Teaching Method

Two lectures a week with an in-class discussion.

Prerequisites

None. No technical background is presupposed, but students without a basic understanding of computing and networking concepts may find it useful to read up on these subjects independently.

Required Books and Other Readings

All required readings are available through the library's website or will be made available to the class via Dropbox.

Evaluation

Attendance & Participation: 20%

Response Papers (x4 2pp.): 40%

Final Paper (8-10 pp.): 40%

Student Writing

There will be **four short papers** (2 pp, double-spaced) in which students will either respond to course readings or a contemporary news article related to the themes of the course. Prompts for these assignments will be circulated by me a week in advance of their due date via e-mail and the course blog. A final research paper, in which students will analyze a **historical** computational artifact (a piece of hardware, a software package, or a historical film or novel), will be due on **March 14**. A one paragraph proposal of this papers will be due on **February 9**. All papers should be submitted to me electronically by 1:00 PM on the due date. These files should be in either .doc .docx or .odt format.

Course Participation

Readings should be completed by the day that they are listed. Since each meeting will begin with a 20 to 30 minute discussion of the readings, students should come prepared to participate in this discussion.

Course Schedule

Key: » = Selections | † = Primary Source

Important Dates for your Calendar: Paper Proposal: Feb 9 | Final Paper: March 14

Week 1 - Introduction

L1, January 5: What We are Talking about When We Talk about Computers

Read:

- Kling, Rob. “Reading ‘all About’ Computerization: How Genre Conventions Shape Nonfiction Social Analysis.” *The Information Society* 10, no. 3 (1994): 147–172.
- Edwards, Paul. “How to Read a Book”

Week 2 - Computational Labor and Gender

L2, January 10: Gender & Early Computer History

Read:

- Light, Jennifer S. 1999. “When Computers were Women.” *Technology and Culture*. 40: 455-483.
- Hicks, Marie. 2010. “Only the Clothes Changed: Women Operators in British Computing and Advertising, 1950-1970.” *IEEE Annals of the History of Computing*. 32, no. 1: 5-17.

Watch:

- *American Artifacts: History of Computers*, Part 1 & Part 2

L3, January 12: Invisible Labor and Resources: The Material and Social Bases of the “Information Revolution”

Read:

- Rayward, W. Boyd. “Visions of Xanadu: Paul Otlet (1868–1944) and Hypertext.” *Journal of the American Society for Information Science* 45, no. 4 (1994): 235–250.

- Blanchette J.F. 2011. “*A Material History of Bits.*” *Journal of the American Society for Information Science and Technology*. 62, no. 6: 1042-1057.
- † Bush, Vannevar. “*As We May Think.*” *The Atlantic*. July 1945.
- † Capek, Karel, Paul Selver, and Nigel Playfair. *R.U.R.: A Fantastic Melodrama in Three Acts and an Epilogue*. New York: S. French, 1923. »Skim

Week 3 - Information and Empire

L4, January 17: Knowing the “Enemy:” Empire, Data Retrieval, and the First Information Revolution

Read:

- » McCoy, Alfred W. *Policing America’s Empire The United States, the Philippines, and the Rise of the Surveillance State*. Madison, Wis: University of Wisconsin Press, 2009. »Read: ”Prologue” (pp. 1-15) and ”1 - Capillaries of Empire” (pp. 15-42).

Look At:

- “*Computers and the Apartheid Regime in South Africa*”

L5, January 19: Knowing the World: Semi-Automatic Ground Environment & Igloo White

Read:

- » Edwards, Paul N. *The Closed World: Computers and the Politics of Discourse in Cold War America*. The MIT Press, 1997. »Read: “2 - Why Build Computers?: The Military Role in Computer Research” (43-74) and “3 - SAGE” (75-113).

Watch:

- † “*IBM SAGE Computer Ad, 1960*”
- † “*Operation Igloo White*”

Week 4 - Communications and Control

L6, January 24: *The Invention (and Reification) of Information*

Read:

- Bowker, G. 1993. “**How to Be Universal: Some Cybernetic Strategies, 1943-70.**” *Social Studies of Science*. 23, no. 1: 107-127.
- » Gleick, James. *The Information: A History, A Theory, A Flood*. Vintage, 2012.
»Read: “1 - Drums that Talk” (pp. 13-27); “7 - Information Theory” (pp. 204-232); and “8 - The Informational Turn” (pp. 233-268)
- † Rosenblueth, Arturo, Norbert Wiener, and Julian Bigelow. 1943. “**Behavior, Purpose and Teleology.**” *Philosophy of Science*. 10, no. 1.

L7, January 26: *Skynet and Cybersyn: Informatics of Domination or Cybernetics of Liberation?*

Read:

- » Medina, Eden. *Cybernetic Revolutionaries: Technology and Politics in Allende's Chile*. The MIT Press, 2011. »Read: “Introduction: Politics and Technological Visions” (pp. 3-15) “3 - Designing a Network” (pp. 69-95) “Conclusion: Technology, Politics, History” (211-223)
- Gerovitch, S. “**InterNyet: Why the Soviet Union Did Not Build a Nationwide Computer Network.**” *History and Technology* 24, no. 4 (2008): 335–350.
- Harraway, Donna. “**A Cyborg Manifesto Science, Technology, and Socialist-Feminism in the Late Twentieth Century,**” in *Simians, Cyborgs and Women: The Reinvention of Nature* (New York; Routledge, 1991), pp.149-181.
- † Carleton Beals, “**Cybernetics,**” *The Rotarian*, September 1953, 14.

Watch:

- *All Watched Over by Machines of Loving Grace: Part 2 - The Use and Abuse of Vegetational Concepts*

Week 5 - Information and Ideology

L8, January 31: From Whole Earth to "Disruption" Discourse: Technoutopian Rhetoric

Read:

- » Turner, Fred. *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism*. University of Chicago Press, 2008. »Read: "Introduction" (1-11); "1 - The Shifting Politics of the Computational Metaphor" (11-31) "6 - Networking the New Economy" (pp. 175-206)
- † Bower, Joseph L. & Christensen, Clayton M. "Disruptive Technologies: Catching the Wave" *Harvard Business Review*, January–February 1995 »Skim

L9, February 2: "Simulation in the Service of Society:" Models, Games, and "Reality"

Read:

- » Jerven, Morten, *Poor Numbers: How We Are Misled by African Development Statistics and What to Do About It*. Ithaca, New York: Cornell University Press, 2013. »Read: "Introduction" (pp 1-8) & "What Do We Know about Income and Growth In Africa" (pp 8-33)
- Starr, Paul. "Seductions of Sim: Policy as a Simulation Game," *The American Prospect* no. 17 (Spring 1994): 19-29

Play:

- † *SimCity* (1989)

Week 6 - "Making Things the Same:" Standards and Informational Liquidity

L10, February 7: "Rough Consensus and Running Code:" Making Standards and Inventing the Internet

Read:

- » Abbate, Janet. *Inventing the Internet*. The MIT Press, 2000. »Read: "3 - The Most Neglected Element" (pp. 83-113); and "5 - The Internet in the International Standards Arena" (pp. 147-181)

- Russell, A.L. “‘Rough Consensus and Running Code’ and the Internet-OSI Standards War.” *IEEE Annals of the History of Computing* 28, no. 3 (July 2006): 48–61.
- † Network Working Group. “IP over Avian Carriers with Quality of Service”
- † Hoare, C.A.R. “Programming: Sorcery or Science?” *IEEE Software*. 1, no. 2: 5-16.

L11, February 9: Medical Knowledge, Climate Facts, and the Construction of Data

Paper Proposals Due!

Read:

- Edwards, P. N. “The World in a Machine: Origins and Impacts of Early Computerized Global Systems Models.” in *Systems, Experts, and Computers*, MIT Press, Cambridge, MA (2000): 221–254.
- Lakoff, Andrew. “Diagnostic Liquidity: Mental Illness and the Global Trade in DNA.” *Theory and Society* 34, no. 1 (February 1, 2005): 63–92.

Week 7 - The Social Construction of Technology

L12, February 14: Interpretative Flexibility: Hackers, Hobbyists, and Phreaks

Read:

- » Levy, Steven. *Hackers: Heroes of the Computer Revolution - 25th Anniversary Edition*. O’Reilly Media, 2010. »Read: “1 - The Tech Model Railroad Club” (pp. 3-26); “2- The Hacker Ethic” (pp. 27-38); and “10 - The Homebrew Computer Club” (pp 201-226)
- † Goldstein, Emmanuel. *The Best of 2600: A Hacker Odyssey*. Indianapolis, IN: Wiley Pub, 2008. »Read: “The Last Days of Ma Bell” (pp 21-64) »Skim: “The Early Days of the Net” (pp 119-156)
- † Gates, Bill. *An Open Letter to Hobbyists* (1976)

Check Out:

- † *Phone Trips*

L13, February 16: Turing Tests, Spam, and Unintended Consequences

Read:

- » Brunton, Finn. *Spam: A Shadow History of the Internet*. Cambridge, Massachusetts: The MIT Press, 2013. »Read: “Introduction” (pp. xiii- xxi); and “1 - Ready for the Next Message” (pp. 1-53)
- Star, Susan Leigh, and Karen Ruhleder. “Steps Toward an Ecology of Infrastructure: Design and Access for Large Information Spaces.” *Information Systems Research* 7 (1996): 111–134.

Week 8 - Performing Technology, Performing Theory

L14, February 21: “Are ‘Friends’ Electric?” Computers, Entertainment, and Affect

Read:

- » Sterne, Jonathan. *MP3: The Meaning of a Format*. Durham: Duke University Press, 2012. »Read: “Format Theory” (pp. 1-32); and “3 - Perceptual Coding and the Domestication of Noise” (pp. 92-128)

Listen:

- † IBM 704 - “Daisy Bell”
- † Kraftwerk - *Computer World* (Also on YouTube)

L15, February 23: Black-Scholes, High-Frequency Trading, and the Performance of Theory

Read:

- » MacKenzie, Donald A. *An Engine, Not a Camera: How Financial Models Shape Markets*. Cambridge, Mass: MIT Press, 2006. »Read: “1 - Performing Theory” (pp. 1-37)

Week 9 - Networked Communities

L16, February 28: Usenet, The WELL, and EverQuest: Online Sociability and Identity

Read:

- Simon B., Boudreau K., and Silverman M. 2009. "Two Players: Biography and Played Sociality in EverQuest." *Game Studies*. 9, no. 1.
- » Turner, Fred. *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism*. University of Chicago Press, 2008. »Read: "5 - Virtuality and Community on the Well" (pp. 141-175).

L17, March 1: "Information Wants to be Free:" Free Software and Copyright

Read:

- » Cummings, Alex Sayf. *Democracy of Sound: Music Piracy and the Remaking of American Copyright in the Twentieth Century*. New York: Oxford University Press, 2013. »Read: "Conclusion: Piracy as Social Media" (pp. 200-218).
- † Debian Foundation, "[Debian Social Contract](#)" (1997)
- † Stallman, Richard, "[GNU Manifesto](#)" (1995)
- † Microsoft, "[Halloween Documents](#)" (1998)

Watch:

- † [Revolution OS](#) (2001)

Week 10 - Conclusion

L18, March 6: From Punched Cards to PRISM: Infrastructure and Surveillance

Read:

- † Newspaper articles: TBD

March 14: Final Papers Due