

# **Ethics and Policy Issues in Computing**

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1-14-09

# Today

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- Rapid change
  - So what? EEA
- Lessig: Architecture and regulation
- Is technology neutral?
- Selecting topic, debate assignment
  
- Next time:
  - Ethics: how to pursue a good life . . .

# Rapid Pace of Change

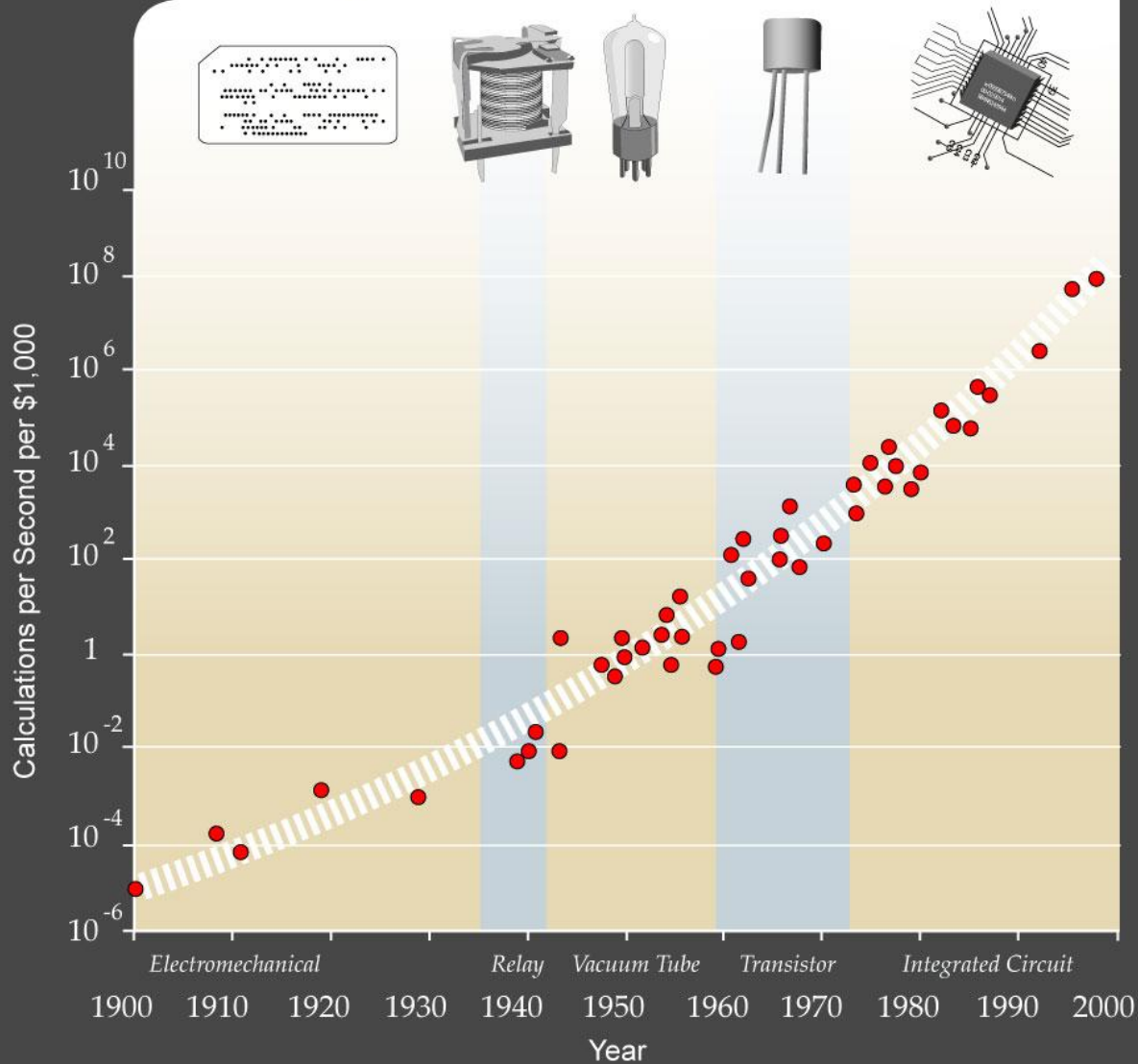
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- 1940s: The first computer is built
- 1956: First hard-disk drive weighed a ton and stored five megabytes
- 1991: Space shuttle had a one-megahertz computer
- 2006: Pocket devices hold a terabyte (one trillion bytes) of data
- 2006: Automobiles can have 100-megahertz computers

# Moore's Law

The Fifth Paradigm

Logarithmic Plot



Source: Wikipedia, "Moore's Law." Graph courtesy of Ray Kurzweil and Kurzweil Technologies, Inc.

# Change and Human Evolution

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- Environment of evolutionary adaptedness (EEA)
  - "a statistical composite of the adaptation-relevant properties of the ancestral environment encountered by a member of ancestral populations, weighted by their frequency and fitness consequences." (p. 386)
- The environment in which we evolved and to which we are adapted
- Some human characteristics do not change quickly, e.g.,
  - Food preferences
  - Preferring rest
- Possibility of mismatches

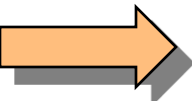
# Possible Mismatches

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- Social connectedness, communication
- Visual stimulation versus “slog”
- Rate of learning
- Self-presentation
- Expression of anger
- Others?
- Dangers of mismatches?

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# Lessig's Analysis - 1

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- How is behavior regulated?
  - Law
  - Norms
  - Markets
  - Architecture – structure of the designed environment

From: Lessig, L. (2006). *Code and Other Laws of Cyberspace*, 2d ed.  
New York: Basic Books.

# Lessig's Analysis - 2

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- “Architecture” regulates behavior
  - Physical architecture, e.g., buildings, streets, fences
  - Code architecture, i.e., software implementing internet, web, applications
  - Malleability of cyberspace makes its architecture particularly important

From: Lessig, L. (2006). *Code and Other Laws of Cyberspace*, 2d ed.  
New York: Basic Books.

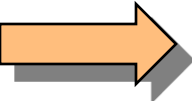
# Mechanisms *and* Institutions

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- How does law regulate?
  - Written documents?
  - People fulfilling roles of judge, attorney, etc.?
  - Habits, expectations, practices, values?

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# Is Technology Neutral?

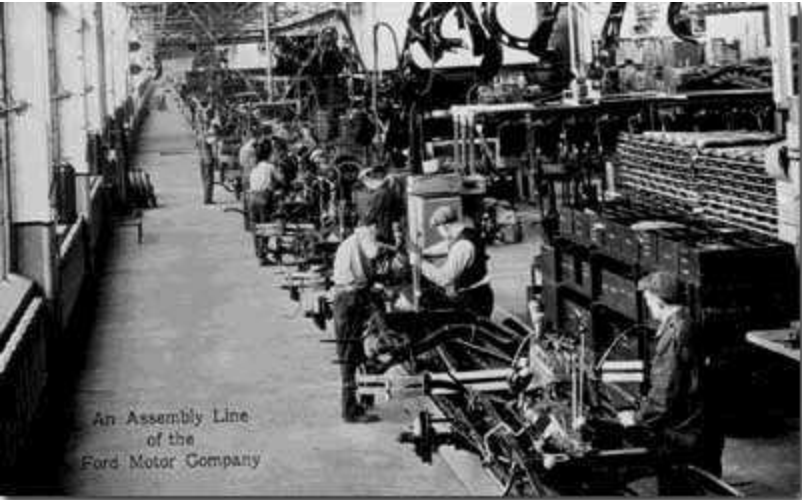
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- Yes
  - Ball point pen can be used to write a letter, sign a death warrant, poke someone in the eye
  - Technologies can be used or abused
- No\*
  - Technology creation is a deliberate act
  - It is done for a purpose
  - It naturally favors those with more power and wealth
  - Fact is disguised with largely irrelevant “choices”
  - Look at industrial revolution, office automation, etc.

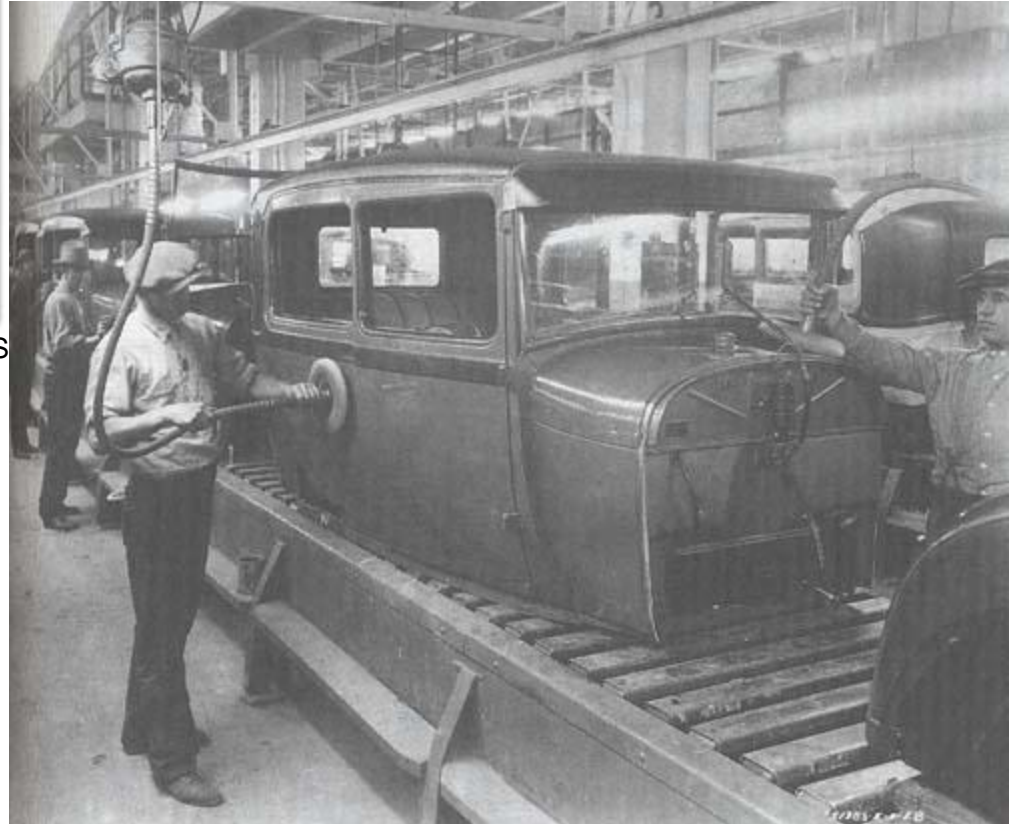
Bereano, P. (1984). Technology and human freedom. *Science for the People*, Nov/Dec, pp. 132-143.

# Ford Assembly Line

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[hubpages.com/hub/ONE-HUNDRED-YEAR-OLD-INNOVATIONS](http://hubpages.com/hub/ONE-HUNDRED-YEAR-OLD-INNOVATIONS)



Professor Mark Thomas, [www.faculty.virginia.edu/hius341/images](http://www.faculty.virginia.edu/hius341/images),

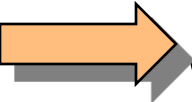
# Is Search Technology Neutral?

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- Are search algorithms neutral?
- Is Google neutral?
- Technology is embedded in economic, cultural, social systems
- It changes and is changed by them

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# Selecting a Research Topic

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- Brainstorm
  - What are you interested in?
  - What would you like to learn more about?
  - What topics might be relevant to your thesis?
  - What topics might be relevant to your future career?
- Select a small number of candidate topics
- Read
  - How much information seems to be available?
  - Is this topic over done?
  - What open questions or points of conflict are there?
  - Do you still find this topic interesting?
  - Do you have the skills necessary to pursue this topic?
- Focus
  - Select a topic
  - Define a focused research question
- Read some more
  - Conduct a “literature review”
  - Adjust your topic as needed

# Debate Assignments for 1/26

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- *"Software piracy is ethical in third world countries."*
  - Five minutes max
  - Argue for your position (pro or con)
  - Anticipate and counteract major arguments on the other side
  - Handle a couple of questions
- No slides
- May use notes
- I will demo 2 sides of a debate next week

# Discussion / Q&A

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