Today

- Impacts of Technology (cont)
- Quiz next Wed

Homework

- Case study due
- Exercise Set 4 out
Societal Impacts of Software Technology (Review)

1. Technological Neutrality
   - A technology is just a tool
     - e.g., for greater efficiency
   - Technology is indifferent / neutral to values
     - e.g., values arise from how it is used

2. Technological Determinism
   - Technology progress has its own “life” (plays itself out)
     - Corollary: Humans powerless in the face of technology
   - Technology development is external to and controlling of societies
An Alternative View

**Big Idea**: Technology only makes sense within a (human) context

3. **The Technical Code**: “... the values and (cultural) assumptions that become manifest in a technology or technology design”

- Explicit values and assumptions
  - based directly on the design features (functions)
  - why certain design decisions were made

- Implicit values and assumptions
  - implicit as in “unconscious” (as in implicit bias)
  - social and cultural values leading to explicit choices
  - built-in (possibly unknown to designers) cultural context
  - reasons why the explicit values exist and implications
Bigg(er) Idea: Technology not only influenced by, but also influences the context

**Technology has social ramifications ...**

**Lock-in:** As technology becomes used ...
- The design (technical code) becomes “locked in”
- Influencing future thought and behavior (see next ...)

**Technology can change the cultural context ...**
- Can influence our “mental models” (e.g., via lock-in)
- Can change how we communicate, interact, and think
  - Example: Turing Test and Credit Ratings [J. Lanier]
  - Can influence or define the choices people make (e.g., FB “friends”)
  - Can influence or define notions of self (e.g., in language & personas)
- Encoding human behavior in technology can dehumanize

**Exercise 4:** Examples of ways software technology can dehumanize.
Web 2.0 Example, from “You are not a Gadget” (J. Lanier)

- www.wbur.org/onpoint/2010/01/13/where-the-web-went-wrong

- Web 2.0: 14:40–15:18
  - Exercise: Briefly summarize Web 2.0

- Hive Mind: 4:04–5:35 ... Wikipedia example from the Book
  - Exercise: What are the implicit values and assumptions?
    * Hive mind is good?
    * Anonymization is good?
    * Aggregate (collective) valued over the parts (in this case humans are the parts)
    * Similar to recent (2017) book "Death of Expertise": "I fear we are witnessing the death of expertise: a Google-fueled, Wikipedia-based, blog-sodden collapse of any division between professionals and laymen, students and teachers, knowers and wonderers -- in other words, between those of any achievement in an area and those with none at all."

- FB and the Hive Mind: 7:44–11:28
  - Exercise: What are the harms?
    * Abstract records of ourselves (dehumanizing)
    * Leaching ability to reinvent ourselves
    * Loss of livelihood (harder to find livelihood)

- Internet Mobs: 32:04–35:50
  - Exercise: What are the harms?
    * Mob phenomenan leads to trolling & meanness
    * individual responsibility brings out better qualities
      ... collective behavior becomes "nasty"
    * anonymity can bring out the worst in people
      depending on architecture (e.g., voting vs FB)
    --> What have we seen since 2010?
• Economics: 3:02–4:02
  – Exercise: What are the harms?
    * The robots are coming!
    * If the new economy is "intellectualism" then we better stop giving our own information away for free!
    * If we don’t get the architecture/design right, more and more people will be impoverished
Four things to consider when analyzing impacts

1. What is the technical code? (explicit and implicit values & assumptions)

2. Who is (or potentially) impacted by the technology?

3. What are the (existing or potential) societal changes?

4. What are positive and negative impacts and their trade-offs? (intended and unintended)

2. Who is impacted?

- e.g., individuals, entire organizations, parts of society
- are impacts local, regional, national, global
- to what degree is each impacted

3. What are the societal changes? Broad areas ... 

- way of life: how we live, work, play and daily interactions
- culture: shared beliefs, customs, values
- community: cohesion, stability, character, services, facilities
- politics: participation, access/influence, democratisation
- environment: availability/quality of food, air, water, exposure to hazards
- health: physical, mental, social and spiritual well-being
- economics: personal/property rights, disadvantage, wealth, equality
- fears & aspirations: perceptions about safety, future of your community, aspirations for your future & childrens future
Exercising Moral Imagination

Ethical habits of mind and action

- Recognize personal & professional choices have consequences for the lives of others (good & bad)
- **Employ empathy:** really imagine what it will be like for others (pain caused, benefit brought)
  - especially those **outside** your personal circles & daily view
  - make a habit of envisioning the likely impact on others
  - expand your understanding (news, books, films, conversations, ...) about human condition to help better envision lives of others

Exercise 5–7