POLITECNICO DI MILANO





Computer Ethics

Moralizing technologies

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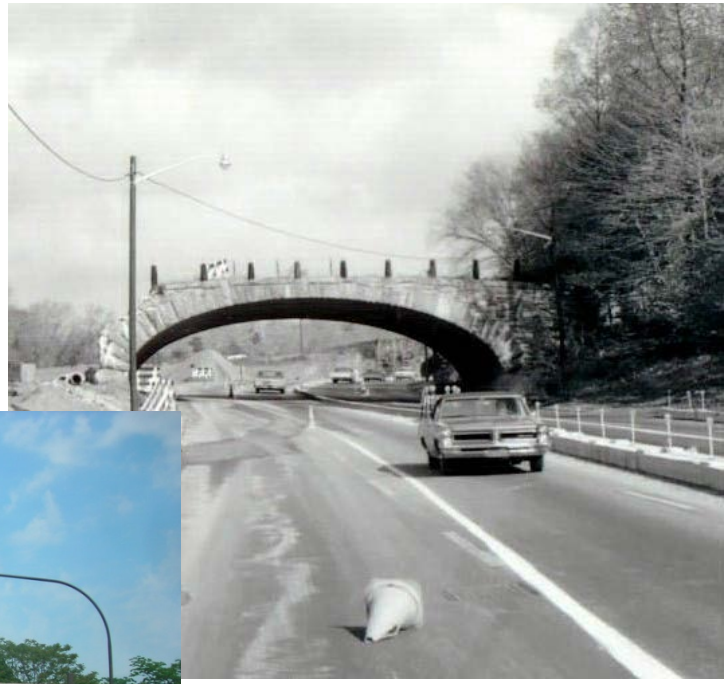
Case: Robert Moses' overpasses



Racist overpasses?

- *Robert Moses (1888-1981) was a very influential and contested **urban planner***
- *He designed several **overpasses** over the parkways of Long Island which **were too low to accommodate buses***
- *Only cars could pass below them and for that reason the overpasses complicated access to Jones Beach Island*
- ***Only people who could afford a car** – and in Moses' days there were generally not Afro-Americans – could easily **access the beaches***

“Do artifacts have politics?”

“Robert Moses, the master builder of roads, parks, bridges, and other public works from the 1920s to the 1970s in New York, had these overpasses built to specifications that would ***discourage*** *the* ***presence of buses*** *on his* ***parkways****. According to evidence provided by Robert A. Caro in his biography of Moses, the reasons reflect* ***Moses's social-class bias*** *and* ***racial prejudice****. Automobile owning whites of "upper" and "comfortable middle" classes, as he called them, would be free to use the parkways for recreation and commuting.* ***Poor people*** *and* ***blacks****, who normally used public transit,* ***were kept off the roads*** *because the* ***twelve-foot tall buses*** *could* ***not*** *get through the* ***overpasses****. One consequence was to* ***limit access*** *of* ***racial minorities*** *and* ***low-income groups*** *to Jones Beach, Moses's widely acclaimed public park****.”***

(Winner 1980)

Ethics as a matter of things

- Technological artifacts can be **politically** or **morally charged**
- We should not consider **morality** as a solely human affair but also as a **matter of things**
- **Artefacts** are bearer of **morality**, as they are constantly taking all kinds of moral decisions for people (Latour 1992)
  - Ex.: moral decision of how fast one drives is often delegated to a speed bump which tells the driver “slow down before reaching me”
- **Technological mediation**
  - Role of technology in human actions

Technological mediation

- The phenomenon that when technologies fulfill their functions, they also help to **shape actions** and **perceptions** of **their users**
- Technologies are **not neutral "intermediaries"** that simply connect users with their environment
- They are **impactful mediators** that help to shape how people use technologies, how they experience the world and what they do
- Mediation of **perception** and mediation of **action**

Mediation of perception

- The **influence** of **artifacts** on **human perception**, that is, the sensory relationship with reality
  - **Incorporating** or **embedding technologies**: e.g. looking through a pair of glasses where the artefact is not perceived in itself but it helps to perceive the environment
  - **Representing reality** (interpretation required): e.g. reading off a thermometer that does not result in a direct sensation of heat or cold

Mediation of perception (more)

- Structure of **amplification** and **reduction** of mediating technologies that amplify specific aspects of the perception of reality while reducing others
- By **transforming our perception**, technologies help to determine how reality can be present for and interpreted by people

Mediation of perception: obstetric ultrasound

- Ultrasound is not simply a **functional means** to make visible an unborn child in the womb, but **mediates** the relations between the fetus and the parents

Obstetric ultrasound and translations

- Number of **translations** of the relations between expecting parents and the fetus while mediating their visual contact
  - Ultrasound isolates the fetus from the female body: **new ontological status of the fetus** as a separate living being
  - Ultrasound places the fetus in a context of medical norms: it translates **pregnancy into a medical process**, the fetus into a possible patient, and congenital defects into preventable sufferings (**pregnancy as a process of choices**)
- **Ambivalent role** of ultrasound: it may both encourage abortion (prevent suffering) and discourage it (emotional bonds)

Mediation of action

- The influence of artefacts on human action
  - **Script**: a **prescription** on **how to act** that is **built** (designed) **into an artefact** (speed bump “slow down when you approach me”, plastic coffee cup “throw me away after use”)
- **Invitation-inhibition structure**: the fact that mediating technology invited specific actions, while other actions are inhibited

The invisibility factor

«There is an important fact about computers. Most of the time and under most conditions ***computer operations*** *are* ***invisible****. One may be quite knowledgeable about the inputs and outputs of a computer and only dimly aware of the* ***internal processing****. This invisibility factor often generates* ***policy vacuums*** *about how to use computer technology.”*

(Moor 1985)

Types of invisibility

- Invisibility of **abuse**

  "*Invisible abuse is the intentional use of **invisible operations** of a computer to engage in **unethical conduct**. A classic example is the case of a programmer who realized he could steal excess interest from a bank.*"

- Invisibility of **programming values**

  "*Consider for example computerized airline reservations. Many different programs could be written to produce a reservation service. American Airlines once promoted such a service called SABRE. This **program** had a **bias** for American Airline flights built in so that sometimes an American Airline flight was **suggested by the computer** even if it **was not the best flight** available.*"

- Invisibility of **complex calculations**

  "*Computers today are capable of **enormous calculations beyond human comprehension**. Even if a program is understood, it does not follow that the calculations based on that program are understood.*"

Experimental technologies

> "*I will call technologies **experimental** if there is only **limited operational experience** with them, so that social benefits and risks cannot, or at least not straightforwardly, be assessed on basis of experience.*"
>
> (van de Poel 2016)

- **Uncertainty** that is inherent in the **introduction** of these new technologies (sophisticated **AI** systems for instance) into **society**
  - **Not** always **science-based** or **evidence-based**
  - Limitations of a **precautionary approach**

From passive responsibility …

- **Responsibility** is connected to being held **accountable** for your **actions** and for the **effects** of your actions
  - Making of choices, taking decisions, failing to act, …
- **Passive** responsibility is a **backward-looking** responsibility which is relevant **after** something **undesirable occurred**

… To active responsibility

- **Active responsibility** means **preventing** the **negative effects** of technology but also **realizing** certain **positive effects** (Bovens 1998)
- **Value sensitive design**: **moral considerations** and values are used as **requirements for** the **design** of technologies (Friedman 1996, van der Hoven 2007)

Moralizing technologies (Verbeeck 2011)

- Many of our **actions** and **interpretations** of the world (also moral ones!) are **co-shaped by** the **technologies**
  - Telephones mediate the way we communicate with others
  - Cars help to determine the acceptable distance from home to work
  - Prenatal diagnostic technologies generate difficult questions about pregnancy and abortion

- **Moral decision-making** is a **joint effort** of **human beings** and **technological artefacts**

Taking mediation into ethics

- **Moralization of technology** is the **deliberate development** of technologies in order **to shape moral action** and decision-making

- Instead of moralizing other people (“do not shower too long”, “buy a ticket before you enter the subway”), humans should/could also **moralize their material environment**

Moralizing technologies: examples

- Metro barriers: “Pay for public transport”
- Hotel keys (with large objects): “Return your hotel keys to the desk”
- Alcohol lock for car (car lock that analyzes your breath): “Don’t drive drunk”

Criticizing the moral character

- Negative reactions to explicitly **behavior-steering technologies** (speed limiters in cars)
- First there is the fear that **human freedom** is **threatened** and that democracy is exchanged for **technocracy**
  - Reduction of autonomy perceived as a threat to dignity
  - Not humans but technologies are in control
- Second there is the **charge of immorality** or **amorality** (form of moral laziness with behavior-steering technologies)
- **Technologies** differ from **laws** in limiting human freedom because they are not the result of a democratic process

A democratic way to moralize technologies?

- **Technologies** differ from **laws** in **limiting human freedom** because they are not the result of a democratic process
- It is important to find a **democratic way** to "**moralize technology**"

Designing mediations

- In order to build in specific forms of mediation in technologies, designers need **to anticipate the future mediating role** of the **technologies** they are designing
  - **Unintentional** and **unexpected forms of mediation** (ex.: energy-saving light bulbs used in places previously left unlit and hence increasing energy consumption)

Not only desired forms

- Designers cannot simply “inscribe” a desired form of morality into an artefact, because this also depends on
  - **Users** that interpret technologies
  - **Technologies** themselves which can evoke **emergent** forms of mediation

Strategies for designing mediations

- **Anticipating mediation by imagination**
  - Trying to imagine the ways technology-in-design could be used to deliberately shape user operations and interpretations
- Augmenting the existing design methodology of **Constructive Technology Assessment** (CTA)
  - **CTA** is an approach in which TA-like efforts are carried out **parallel to the process of technological development** and are **fed back** to the development and design process
  - Not only to determine what a technology will look like, but all **relevant social actors**

Not only technical aspects

- **Technology design** appears to entail **more than inventing functional products**
- The perspective of technological mediation reveals that **designing** should be regarded as a **form of materializing morality**
- The **ethics of engineering design** should take more seriously the **moral charge of technological products**, and rethink the **moral responsibilities of designers** accordingly

References

- Latour, B. (1992). ‘‘Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts’’ in Wiebe E. Bijker and John Law, eds., *Shaping Technology/Building Society: Studies in Sociotechnical Change*, Cambridge, Mass.: MIT Press, 1992, pp. 225–258
- Van de Poel, I. and Royakkers, L. (2011). *Ethics, Technology, and Engineering*, Wiley-Blackwell
- Winner, L. (1980). “Do artifacts have politics?”, *Daedalus*, 109, 121-136