



POLITECNICO
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Ethics and Responsible Design

Promises and Perils in Moralizing Technologies

Viola Schiaffonati

Artificial Intelligence and Robotics Lab

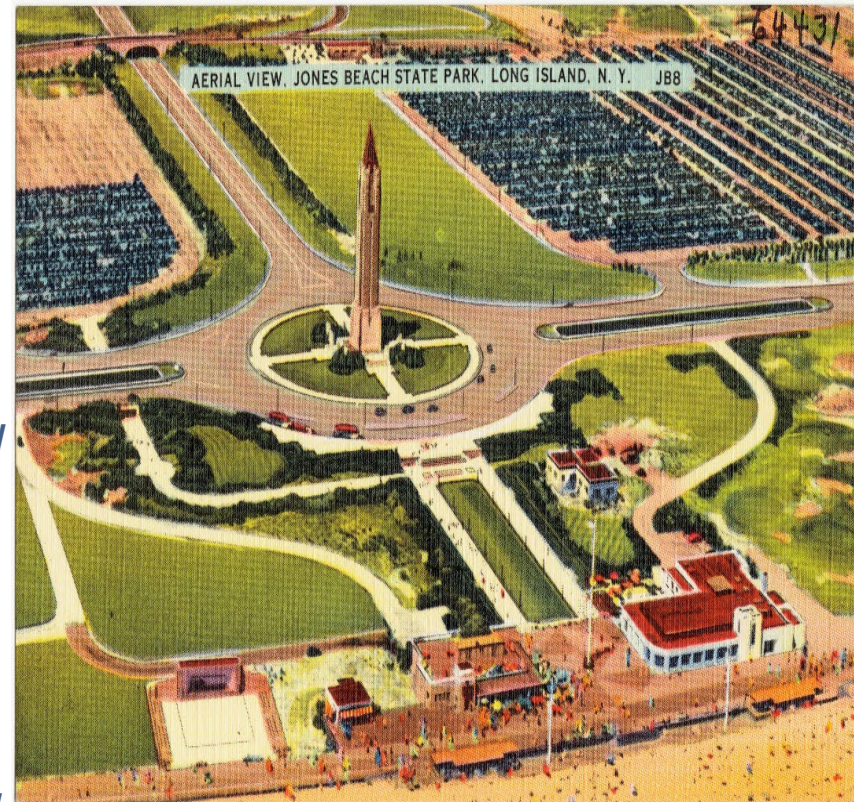
Department of Electronics, Information and Bioengineering

Robert Moses's overpasses



Racists 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)

Agenda

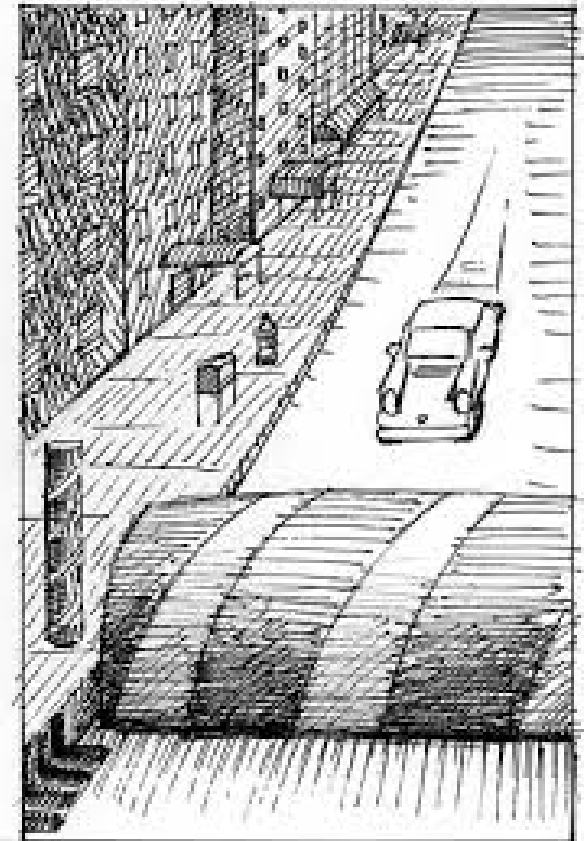
- Technological artifacts as morally and politically charged
 - **Technological mediation**
 - The **moralization** of **technologies**
- From passive to **active responsibility**
- AI technologies
 - **Experimental** technologies
 - The **invisibility factor**
- **Criticizing** the moral character
- **Ethics** of **engineering design**

Beyond racist overpasses

- 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**

Ethics as a matter of things

- **Artefacts** are bearers 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



- 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: 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)

Moralizing technologies

- Instead of only moralizing other people humans should/could also **moralize their material environment**
 - Metro barriers: “Buy a ticket before you enter the subway”
- Moralization of technology is the **deliberate development of technologies** in order **to shape moral action** and decision-making



A paradigm shift

- **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)

Self-driving cars



Panopticon gaze



Robot warriors



Algorithmic trials



Smart artificial workers



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) into **society**



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."*

Taking mediations into ethics



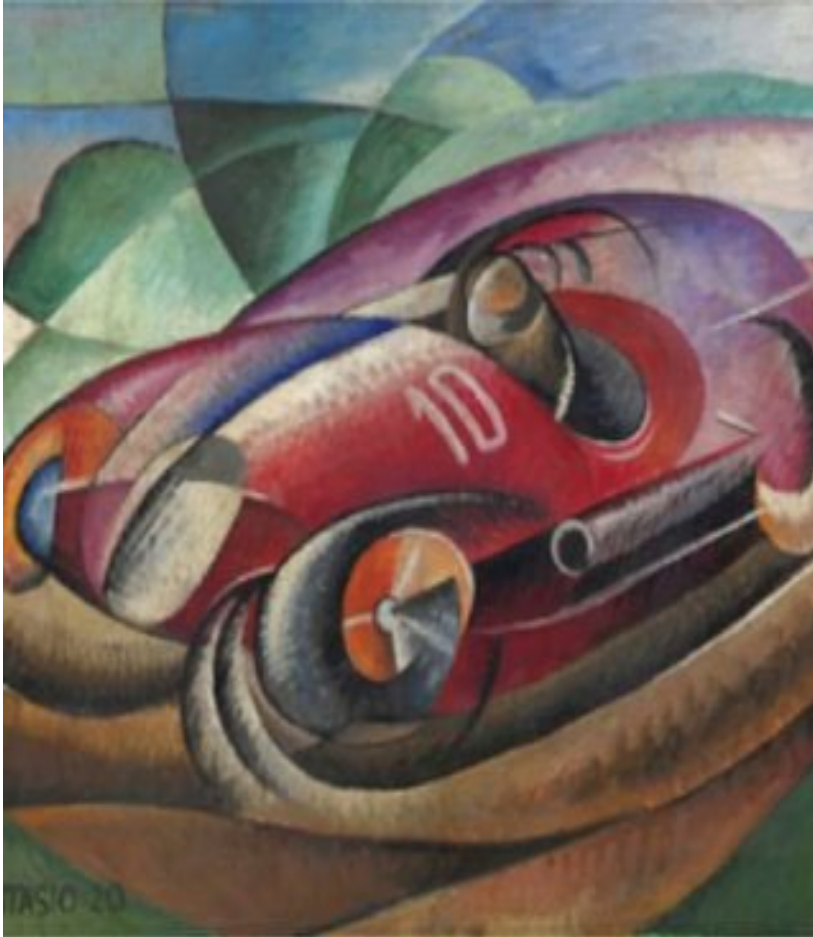
Moralizing technologies (Verbeeck 2011)

- Many of our **actions** and **interpretations** of the world (also moral ones!) are **co-shaped by the technologies**
- **Moral decision-making** is a **joint effort** of **human beings** and **technological artefacts**



<https://www.youtube.com/watch?v=S8a1DascnZg>

Alcohol lock for cars



- **Alcohol lock for car** (car lock that analyzes your breath): “*Don’t drive drunk*”
- Suppose that a car with such a system is not more expensive than the one without it and works perfectly

How many of you would buy such a car? Why?

How many of you would not buy such a car? Why?

Smart showerhead



- **Smart showerhead**
(showerhead that regulates and reduces the flux of water to save water): *"Don't waste water"*
- Suppose that this showerhead is not expensive and allows you to save 50% of your daily consumption of water by learning from your habits

*How many of you would buy it?
Why?*

How many of you would not buy it? Why?

Criticizing the moral character

- Variety of **negative reactions** to explicitly **behavior-steering technologies** (also when they are for the good!)



- 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**
- Risk of **immorality** or **amorality**
 - Form of **moral laziness** with behavior-steering technologies

A democratic way to moralize technology?

- **Technologies** differ from **laws** in **limiting human freedom** because they are not the result of a democratic process
 - See the difference between the alcohol lock for car and the smart showerhead
- Is it possible to find a **democratic way** to “**moralize technology**”?
 - The processes used to insert values must be **transparent** and **publicly discussed**



Designing mediations

- Designers cannot simply “inscribe” a desired form of morality into an artefact
- 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, smart showerhead)



Not only technical aspects

- **Technology design** appears to entail **more than inventing functional products**
- **Designers** cannot simply “inscribe” a **desired form** of morality into an artefact but need to **anticipate** the **future mediating** role of the technologies
- **Users** and **citizens** should be **aware** of **who** decides which are the **values** to be **embedded** in a **technology**
- **Policy makers** have to intervene not only **a posteriori** to **regulate** already existing technologies but to **co-shape them** and to promote a **public debate**

Ethics of engineering design

- 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



Basic references

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