



 POLITECNICO DI MILANO



## ***Ethics and Responsible Design***

## ***Promises and Perils in Moralizing Technologies***

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- Two **peculiar features** of current computer technologies
- A different notion of **responsibility**
- **Ethics** also as a **matter of things** (and not only of people)
- **Ethics** and **design**
- The **moralization of technology**
- Some **open challenges**



«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)





- 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.”*



*"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**





- **Backward-looking responsibility** which is relevant after something undesirable occurred
  - **Accountability:** backward looking responsibility in the sense of being held to account for, or justify one's actions toward others
  - **Blameworthiness:** backward looking responsibility in the sense of being a proper target of blame for one's actions or the consequences of one's actions

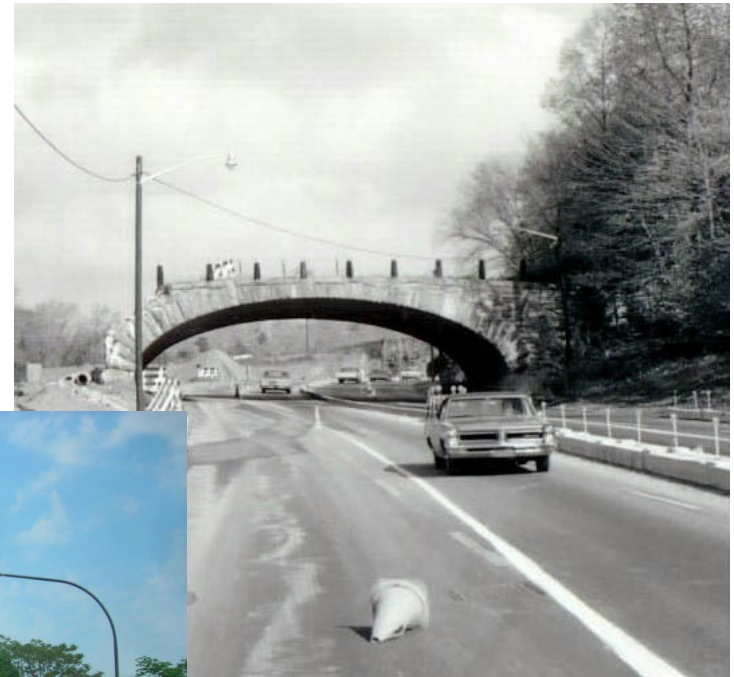


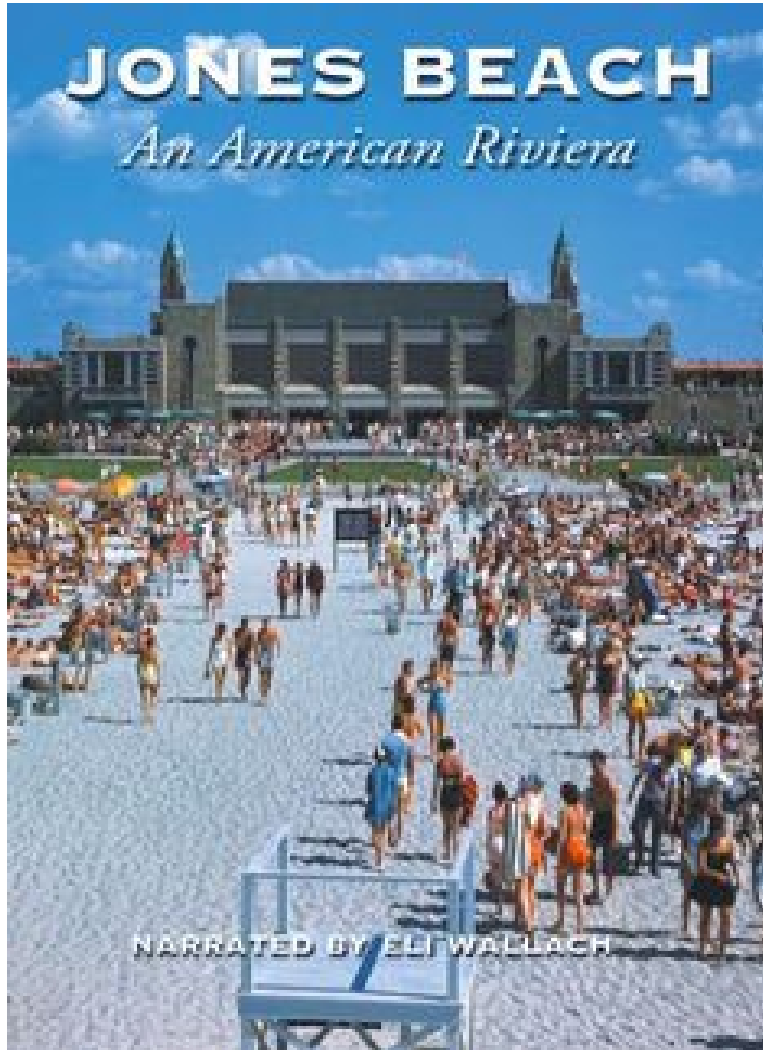


- **Active responsibility** means **preventing** the **negative effects** of technology but also **realizing** certain **positive effects** (Bovens 1998)
- **Value sensitive design:** **moral considerations** and values are used as **requirements for the design** of technologies (Friedman 1996, van der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



- Ethics and design: **ethics** as a matter of **humans** and **things**
- From passive to **active responsibility**
  - Designers, technologists, architects, landscape architects,...
- **Moralizing technologies** and its issues
- **Conflicting values** and different approaches
- **Ethics as a process** (more than codes!)





- *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***



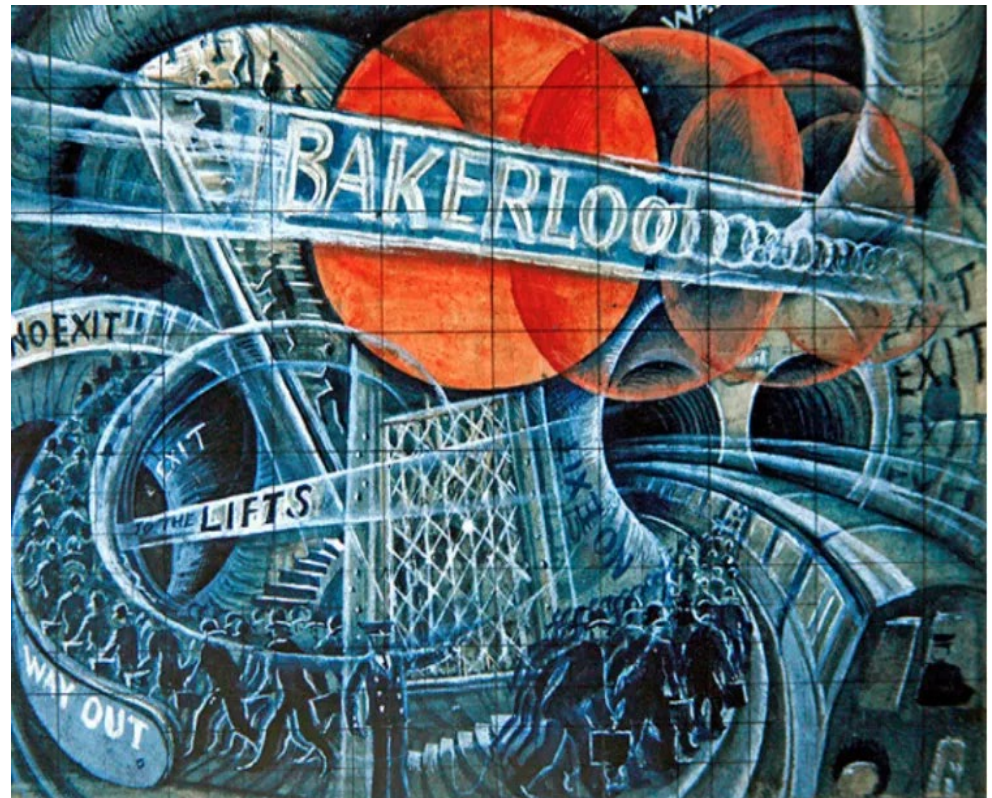
*“Robert Moses, the master builder of roads, parks, bridges, and other public works from the 1920s to the 1970s in New York, had these overpasses built to specifications that would **discourage** the **presence of buses** on his **parkways**. According to evidence provided by Robert A. Caro in his biography 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)





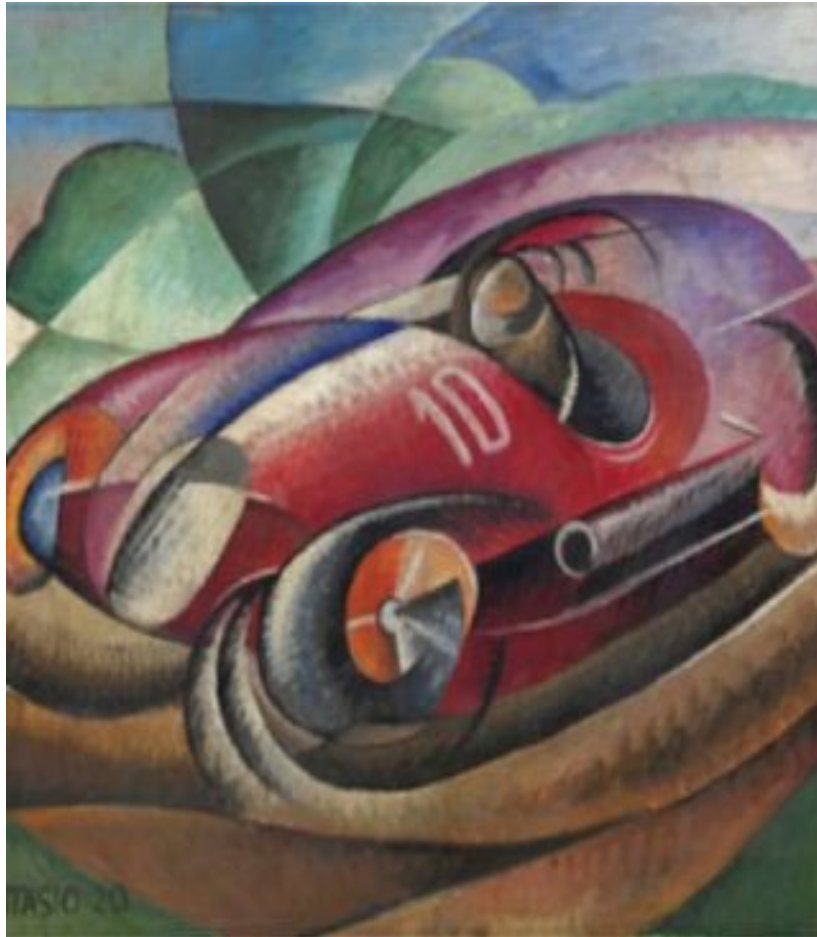
- **Moralization of technology** is the **deliberate development** of technologies in order **to shape moral action** and decision-making
- Instead of moralizing other people (“do not shower too long”, “buy a ticket before you enter the subway”), humans should/could also **moralize their material environment**





- Speed bumps: “Slow down before reaching me”
- 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*”
- 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**  
(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

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

*How many of you would not buy it? Why?*



- 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





- **Technologies** differing from **laws** in **limiting human freedom** as they are not the result of a democratic process
- Important to find a **democratic way** to “**moralize technology**”
  - The processes used to insert values must be transparent and publicly discussed





- 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)





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



- **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**

***Thank you for your attention!***  
***Any question?***



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