



*Veicoli automatici*  
*L'importanza di dare un significato*  
*ad un termine ormai noto*

**Prof. Marco Pierini**

Assicurazioni e nuove tecnologie

Firenze, Palazzo Incontri, Via dei Pucci 1

Venerdì 2 febbraio 2018





Che cos'è un veicolo autonomo



Livello di automazione e roadmap



Benefici, rischi ed aspetti etici



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Benefici, rischi ed aspetti etici

# *Veicolo autonomo*

Automated car

Autonomous car

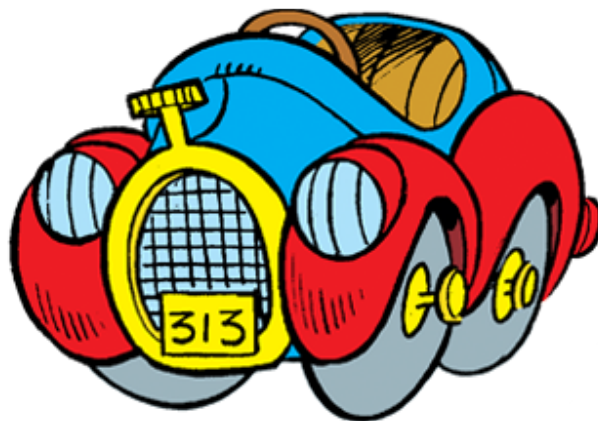
Driverless car



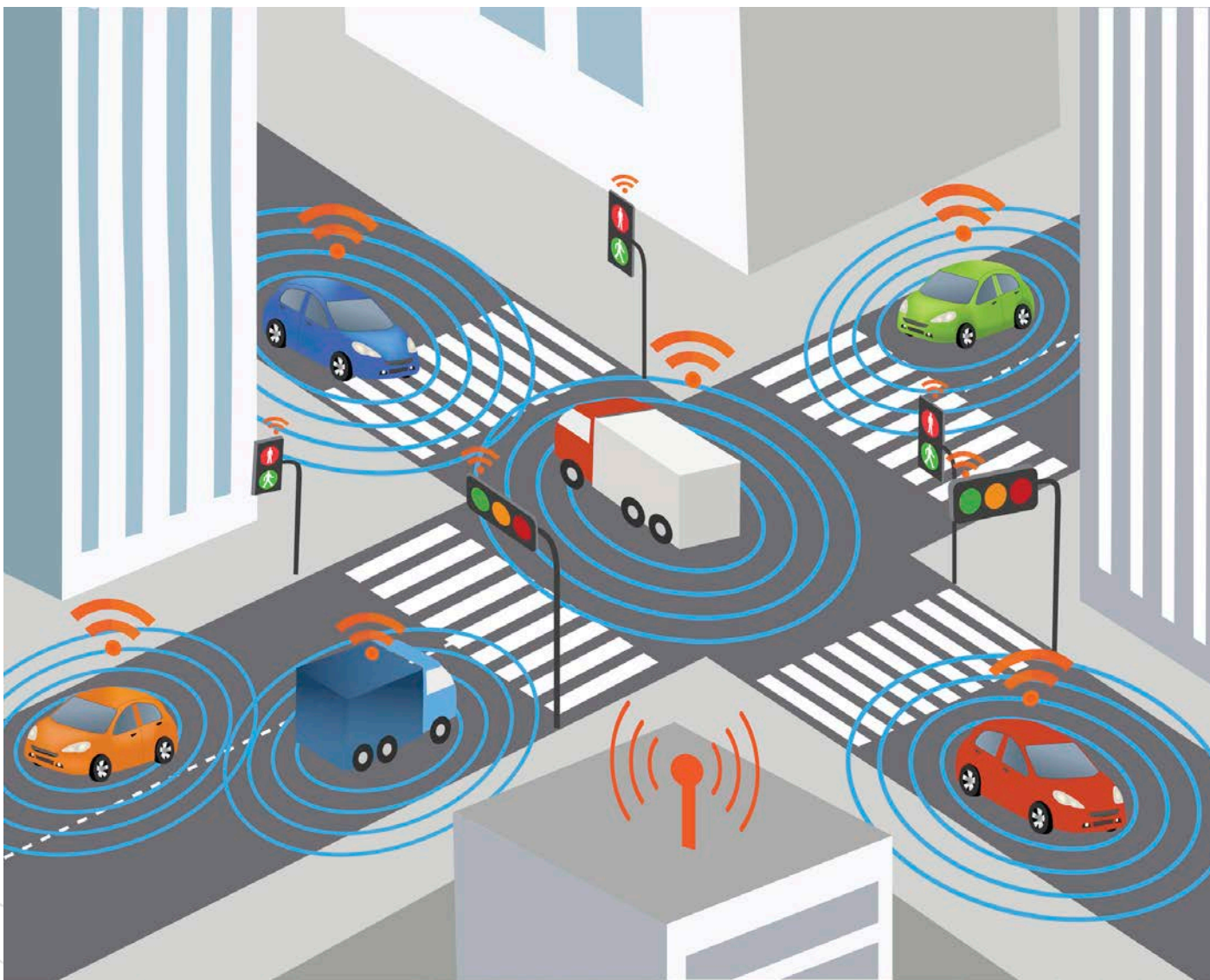
Robotic car

Self-driving car

# Cos'è un veicolo autonomo?



# *Cos'è un veicolo autonomo?*



# Argomenti



Che cos'è un veicolo autonomo



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# SAE standard J3016

SAE level	Name	Narrative Definition	Execution of Steering and Acceleration/Deceleration	Monitoring of Driving Environment	Fallback Performance of Dynamic Driving Task	System Capability (Driving Modes)
<b>Human driver monitors the driving environment</b>						
<b>0</b>	<b>No Automation</b>	the full-time performance by the <i>human driver</i> of all aspects of the <i>dynamic driving task</i> , even when enhanced by warning or intervention systems	Human driver	Human driver	Human driver	n/a
<b>1</b>	<b>Driver Assistance</b>	the <i>driving mode</i> -specific execution by a driver assistance system of either steering or acceleration/deceleration using information about the driving environment and with the expectation that the <i>human driver</i> perform all remaining aspects of the <i>dynamic driving task</i>	Human driver and system	Human driver	Human driver	Some driving modes
<b>2</b>	<b>Partial Automation</b>	the <i>driving mode</i> -specific execution by one or more driver assistance systems of both steering and acceleration/deceleration using information about the driving environment and with the expectation that the <i>human driver</i> perform all remaining aspects of the <i>dynamic driving task</i>	<b>System</b>	Human driver	Human driver	Some driving modes
<b>Automated driving system ("system") monitors the driving environment</b>						
<b>3</b>	<b>Conditional Automation</b>	the <i>driving mode</i> -specific performance by an <i>automated driving system</i> of all aspects of the dynamic driving task with the expectation that the <i>human driver</i> will respond appropriately to a <i>request to intervene</i>	System	<b>System</b>	Human driver	Some driving modes
<b>4</b>	<b>High Automation</b>	the <i>driving mode</i> -specific performance by an automated driving system of all aspects of the <i>dynamic driving task</i> , even if a <i>human driver</i> does not respond appropriately to a <i>request to intervene</i>	System	System	<b>System</b>	Some driving modes
<b>5</b>	<b>Full Automation</b>	the full-time performance by an <i>automated driving system</i> of all aspects of the <i>dynamic driving task</i> under all roadway and environmental conditions that can be managed by a <i>human driver</i>	System	System	System	<b>All driving modes</b>



# Argomenti



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# Opportunità



Riduzione congestione da traffico  
(guida più uniforme)



Migliore efficienza energetica  
(consumi, costi, ambiente)

# Opportunità



Riduzione # incidenti



Riduzione costi sociali



RIDUZIONE COSTI ASSICURATIVI

Auto privata → Auto condivisa



- Malfunzionamento
- Interazione tra veicoli autonomi e tradizionali
- Funzionamento in tutte le condizioni ambientali?
- Infrastruttura (V2I)
- Aumento del traffico
- Interazione uomo-macchina (SAE level 3)

# Rischi

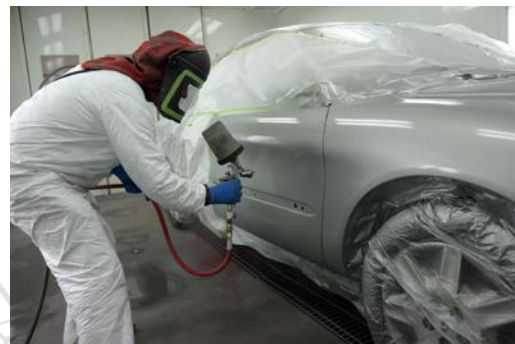




Eliminazione guidatori  
professionali



Meno lavoro per le assicurazioni



Meno lavoro per i carrozzieri

# Rischi



Privacy: V2V and V2I

Attacchi hacker

Attacchi terroristici

Accettabilità





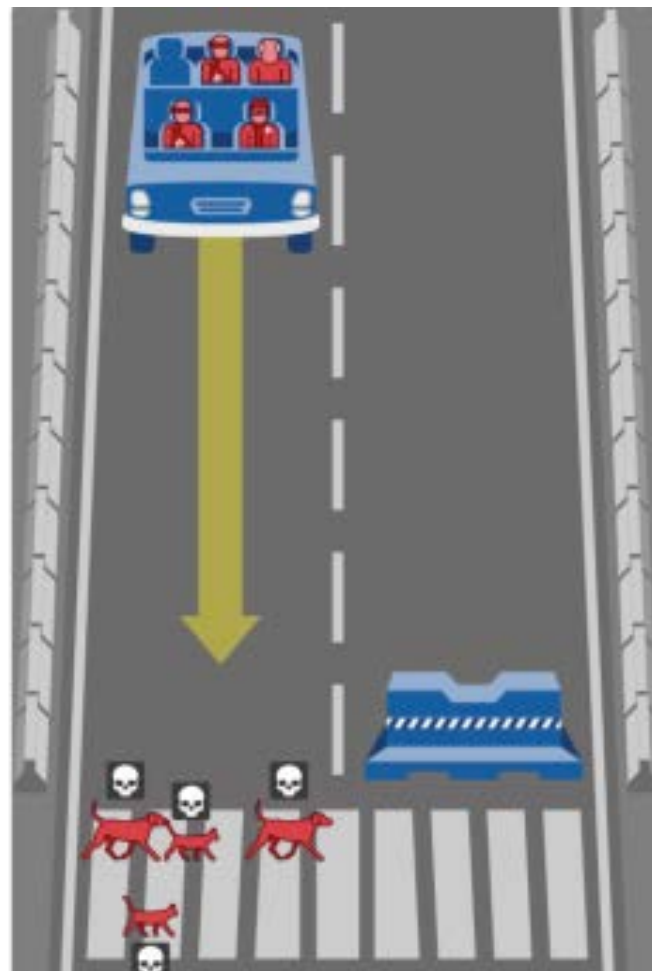
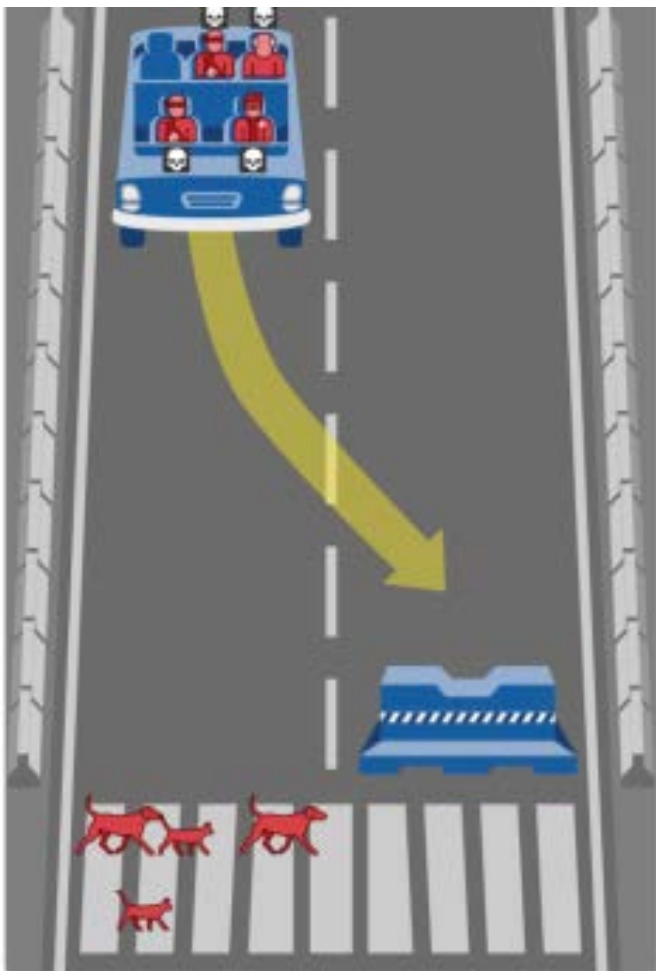


# *Aspetti etici*

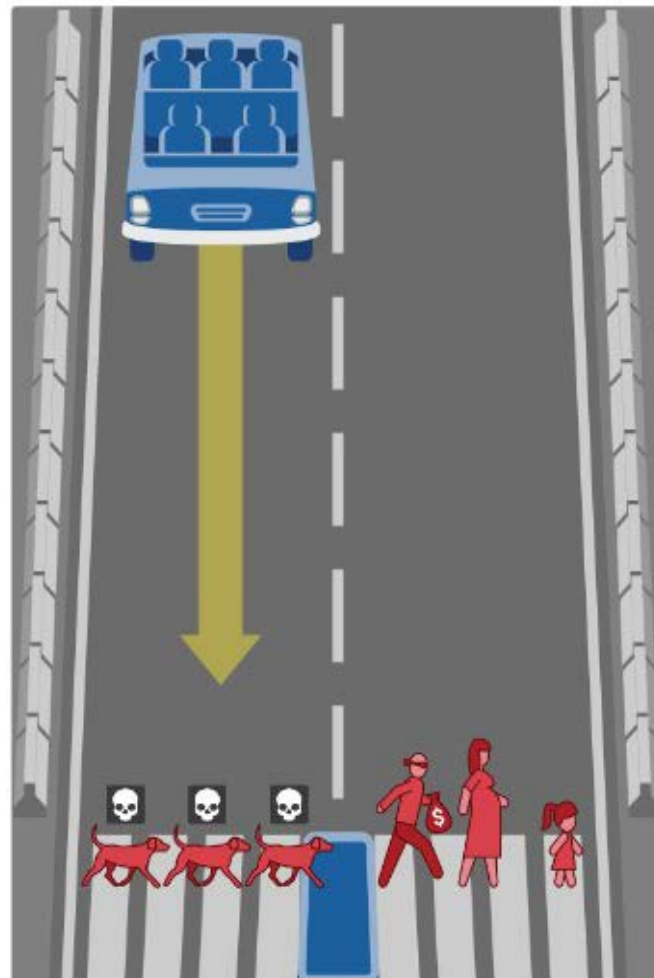
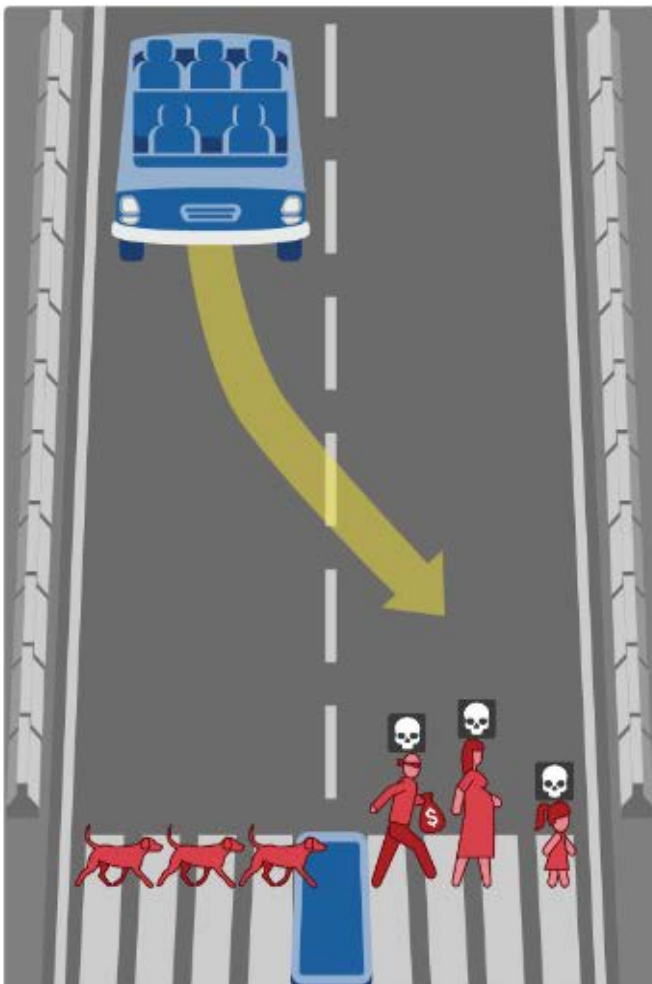
- Quale scelta?
- Studio di Iyad Rahwan (MIT)



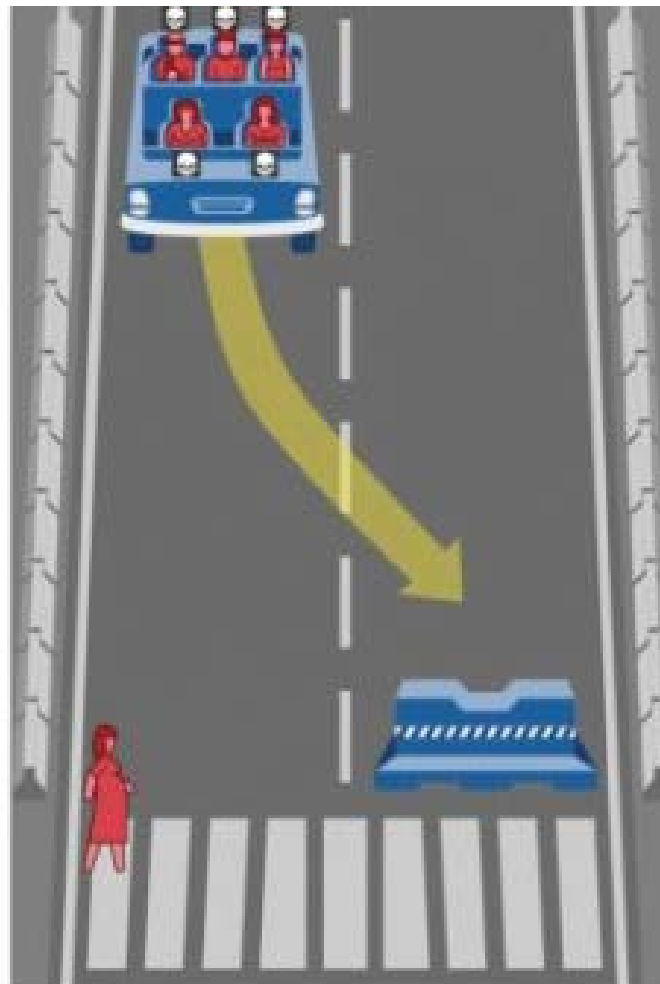
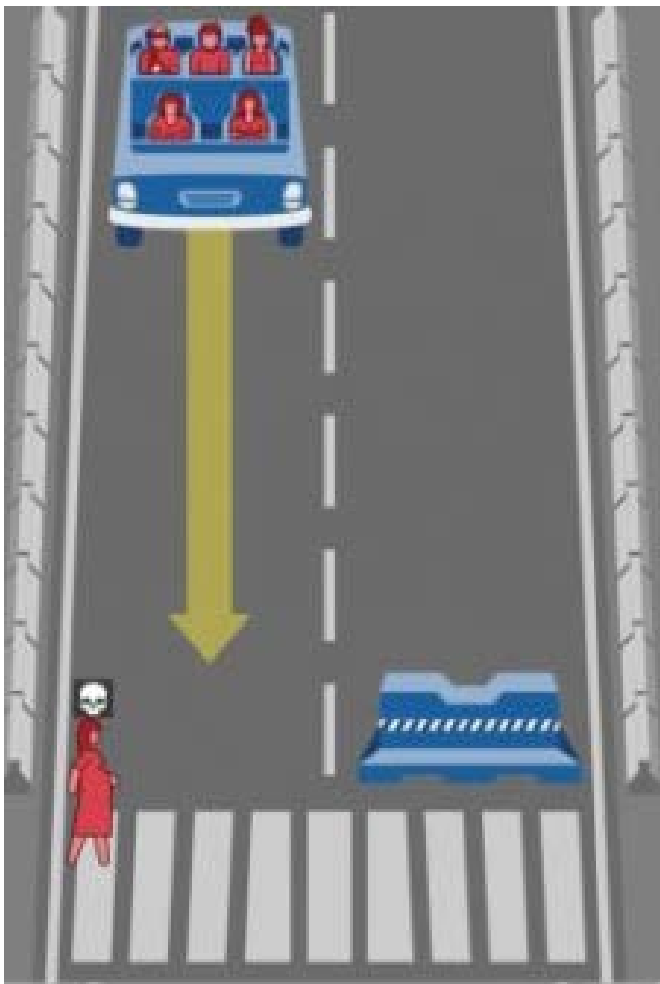
# Quale scelta?



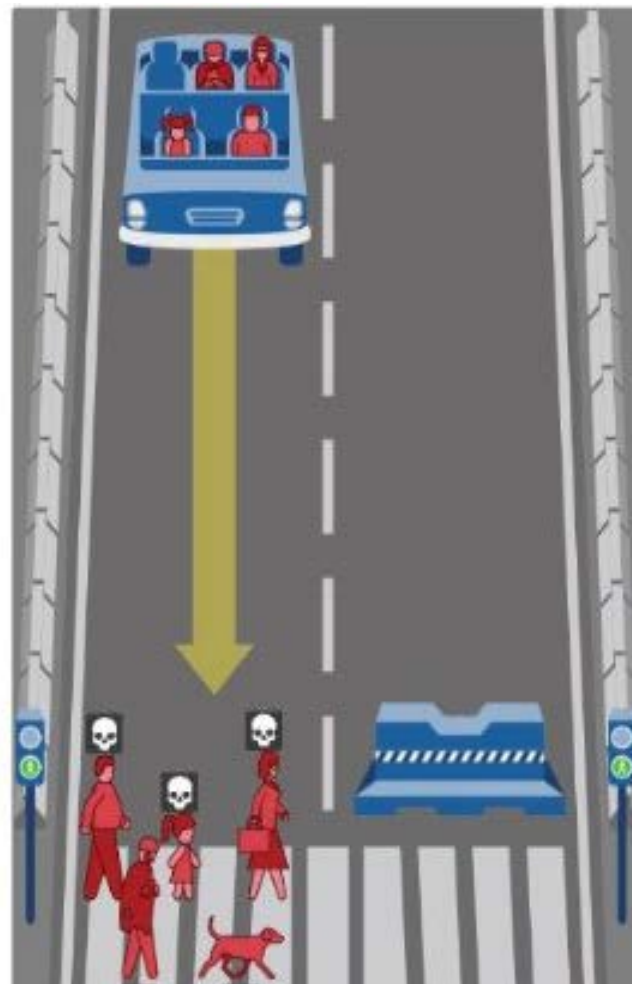
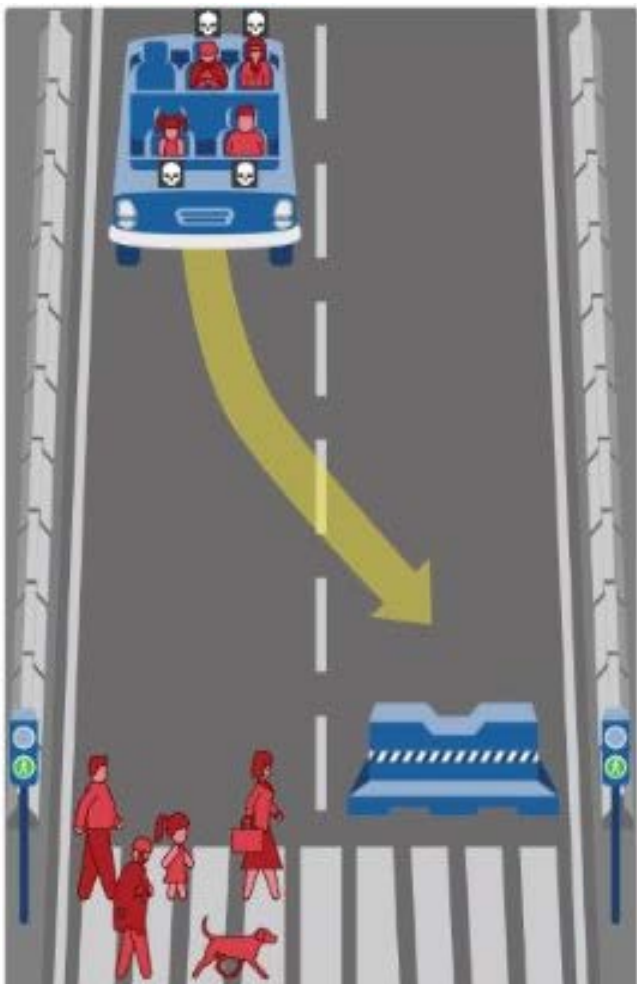
# Quale scelta?



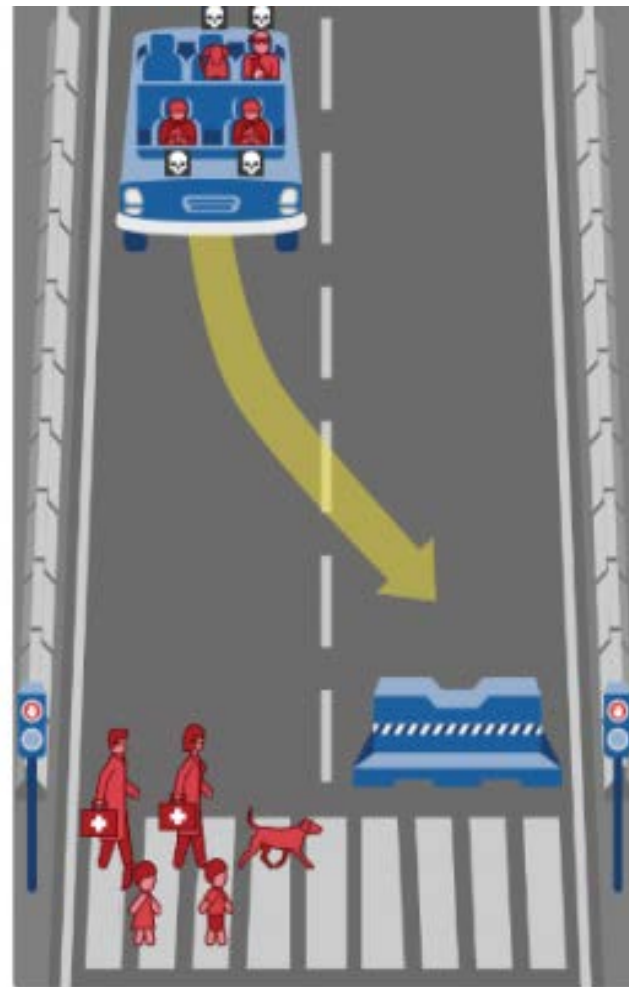
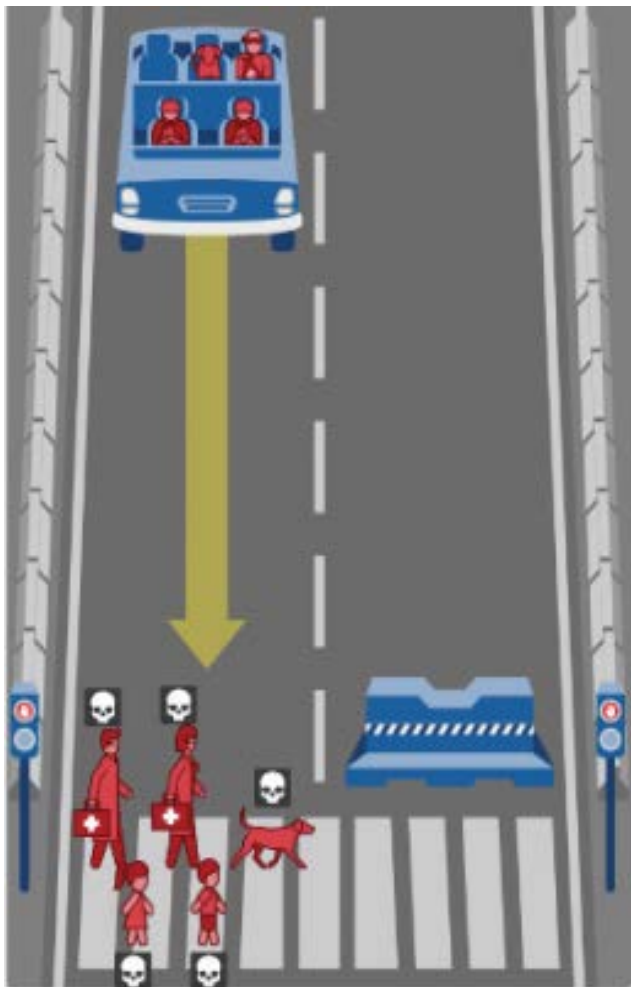
# Quale scelta?



# Quale scelta?



# Quale scelta?





# *Sondaggio*

- Principio dell'utilitarismo
- L'autovettura deve prendere la decisione che minimizza le lesioni complessive





# Sondaggio

- Voi la comprereste?
- Assolutamente no. Voglio comprare un'auto che mi protegge al meglio
- Ma gli altri dovrebbero comprare tale autovettura







*grazie*

marco.pierini@unifi.it

