

HCI in the car

Prof. Emanuele Panizzi



DIPARTIMENTO
DI INFORMATICA
SAPIENZA
UNIVERSITÀ DI ROMA

Current car capabilities

- CPUs, sensors, actuators
- Many interaction devices
- Connected car

Interactive systems

- navigation systems,
- entertainment systems,
- cell phones
- HVAC systems (Heating, Ventilation and Air Conditioning),

Potential for distraction

visual attention

cognitive load

UI in the automotive domain

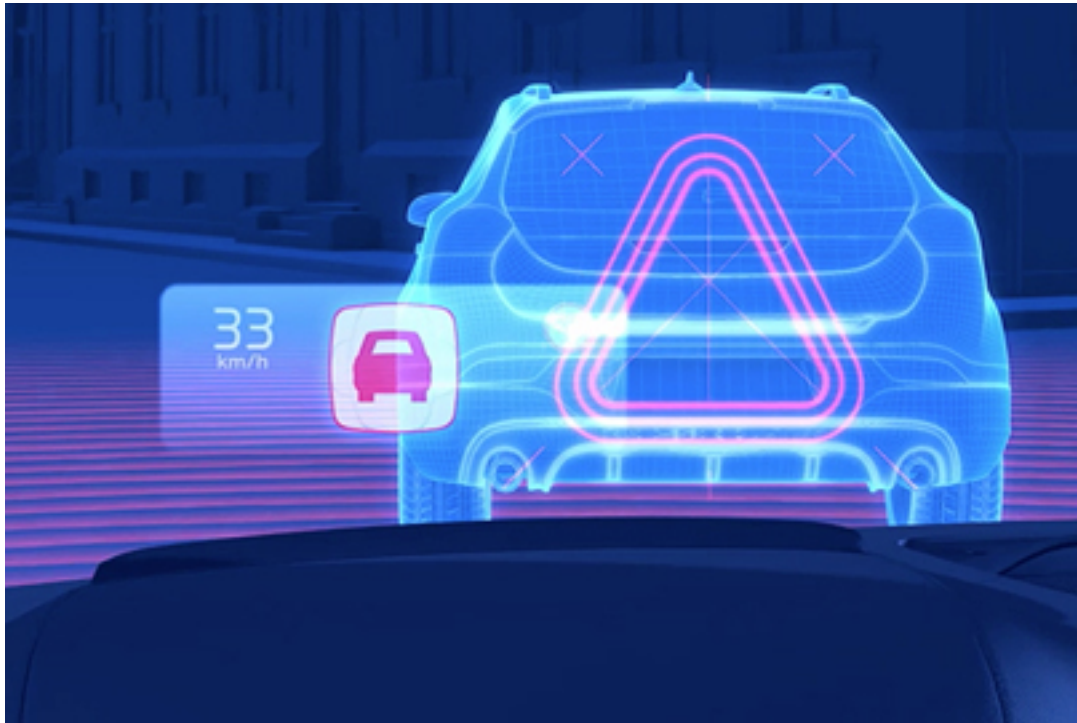
- different from desktop settings
- different from mobile environments
- touch-sensitive screens become safety hazards

Position of controls

- eyes shift from road to device and back again
- all the context must be restored
- time needed







Hands free interaction

- Audio output
- Speech recognition
- Gesture recognition



Control systems

- automatic transmission,
- anti-skid braking,
- stability controls,
- active cruise,
- lane-keeping,
- braking,
- distance from the vehicle ahead or behind or to the sides,
- automatic parking
- overtaking vehicles detection
- automatic payment for highway tolls and parking lots,

Driver in the loop?

- trust that what the car does is right
- false alarms -> underutilization (disuse)
- driver overly confident -> misuse
- supervision?
 - asking the driver?
 - giving the driver the relevant information?
- not enough time