

# GT5 Interactions personnes/ systèmes robotiques

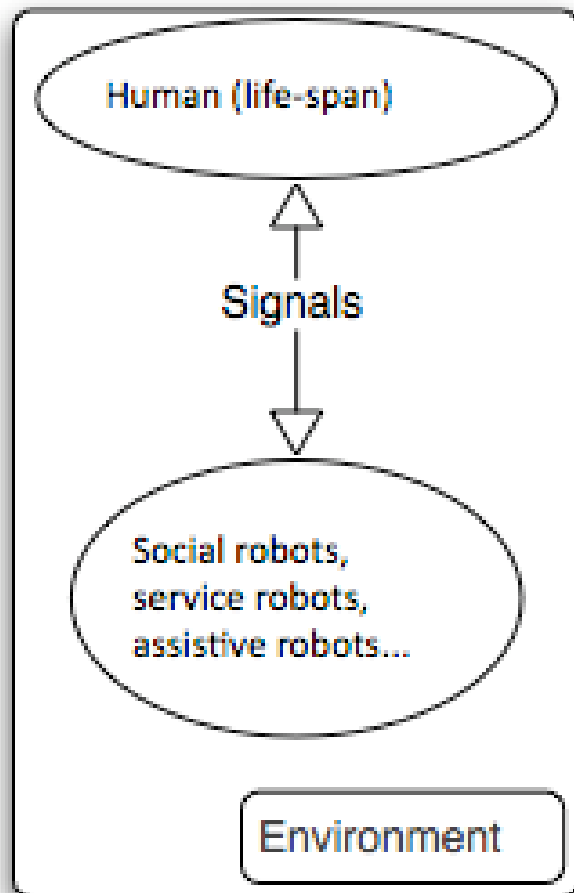
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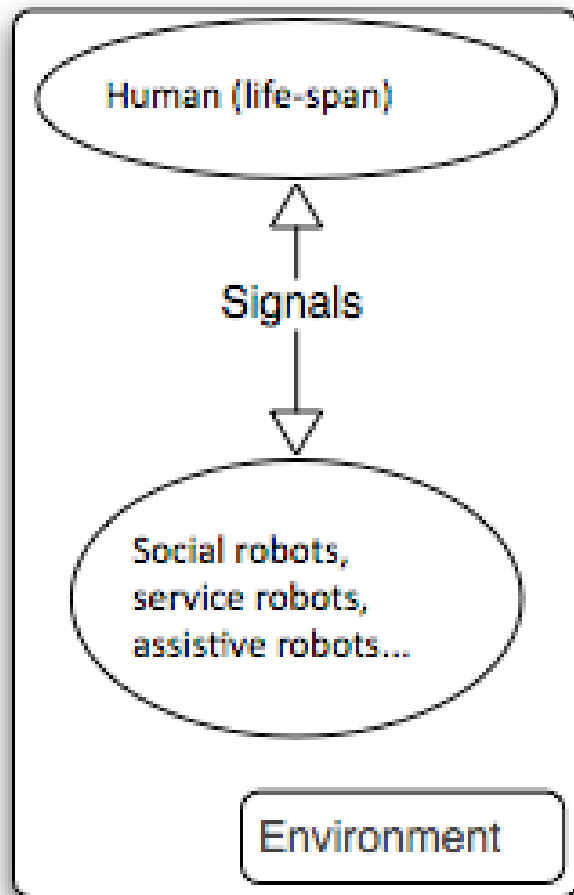
# Introduction



- Topics:

- Communicative signals
- Cooperation, coordination between Humans and robotic systems
- Interaction with complex systems (multi-robots, ambient intelligence, new interfaces)
- Convergence of virtual reality and robotics.

# Introduction



- Common topics:

- Evaluation of interactive systems
  - Qualitative and quantitative measures.
  - Psychometrics
  - Other indicators (e.g. in pathology, human-robot loop)
- Interaction with non-expert and/or disable users:
  - Rich and complex behaviors
  - User modeling

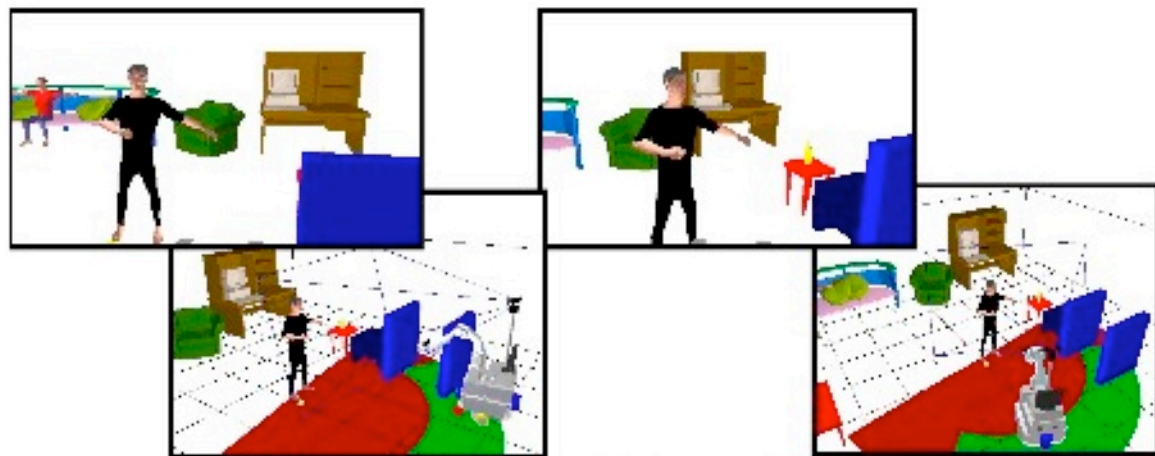
# Communicative signals

- **Multi-modal perception** of signals:
  - Robust methods suitable for mobility
  - Human centered design (movement, social signals, cognition/emotion...).
- **Generation of communicative signals:**
  - Virtual reality, expressiveness
- **Social Psychology in HRI:**
  - Relevant and natural scenarios/situations
  - Acceptability
  - Metrics...



# Cooperation and coordination between Humans and Robots

- Efficient **communication** (dialogue, intentions...)
- **Planning and control** of complex tasks with an explicit **closed loops**
- **Learning techniques for context modeling**: human, various situations, environment...
- **Safety**...

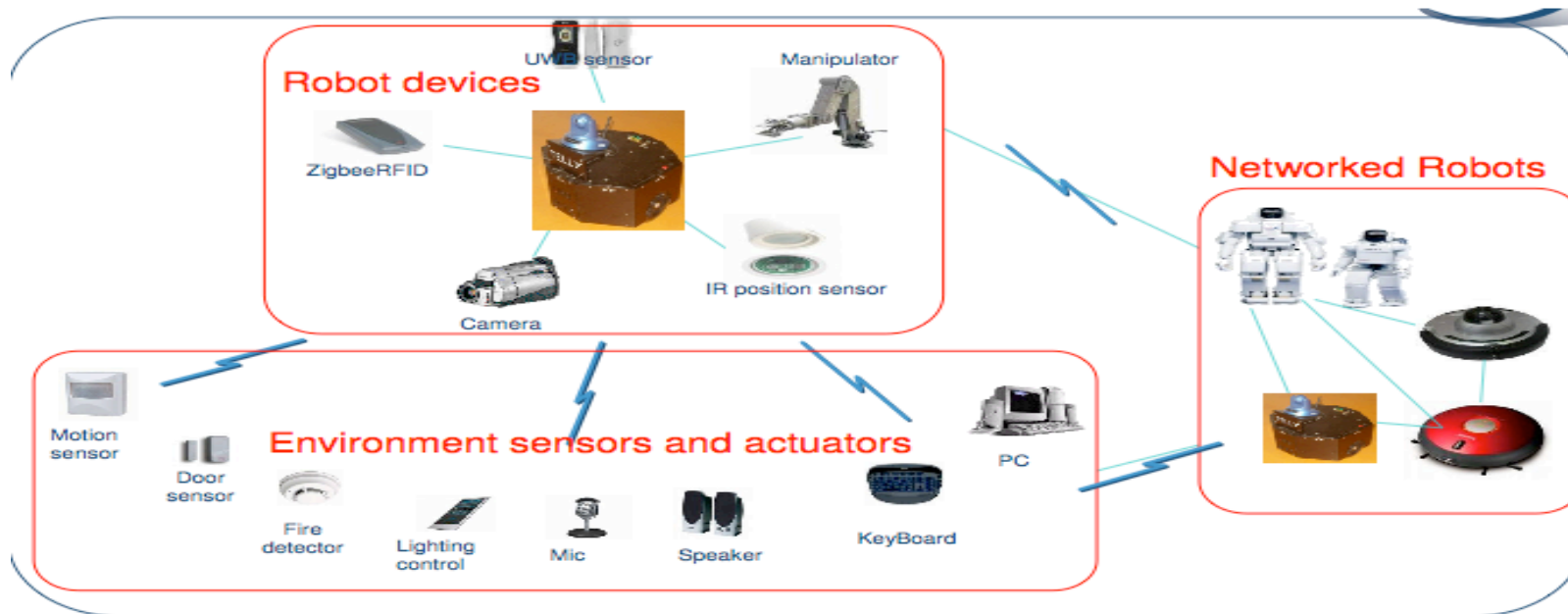


Pointed object not visible from the current  
Robot configuration

Robot moves to see the pointed object

# Ubiquitous Networked Robots

- Ambient intelligence and ubiquitous approaches:
  - Multiple sensors and robots...
  - Open environment, partially known and dynamic.
  - Inter-operability with humans, communicative objects and robots.



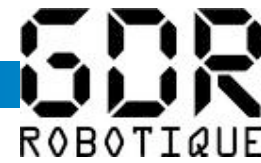
# Summary

## ■ Topics

- Perception, interpretation, prediction and synthesis of communicative signals.
- Decision, planning, control of proactive and/or reactive behaviors for allowing the robot to achieve complex tasks and learn to cooperate with humans.
- Multi-robots interaction

## ■ Interdisciplinary approach:

- « Virtual human and humanoids »: ECA, mixed worlds.
- Social psychology for HRI: acceptability, ethics, cognitive interaction, assistive robotics (pathology), planning tasks...



Merci de votre attention