



Introduction to HRI

Course: Human-Robot Interaction (ROBT414)

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6:16:34 05/06/2015







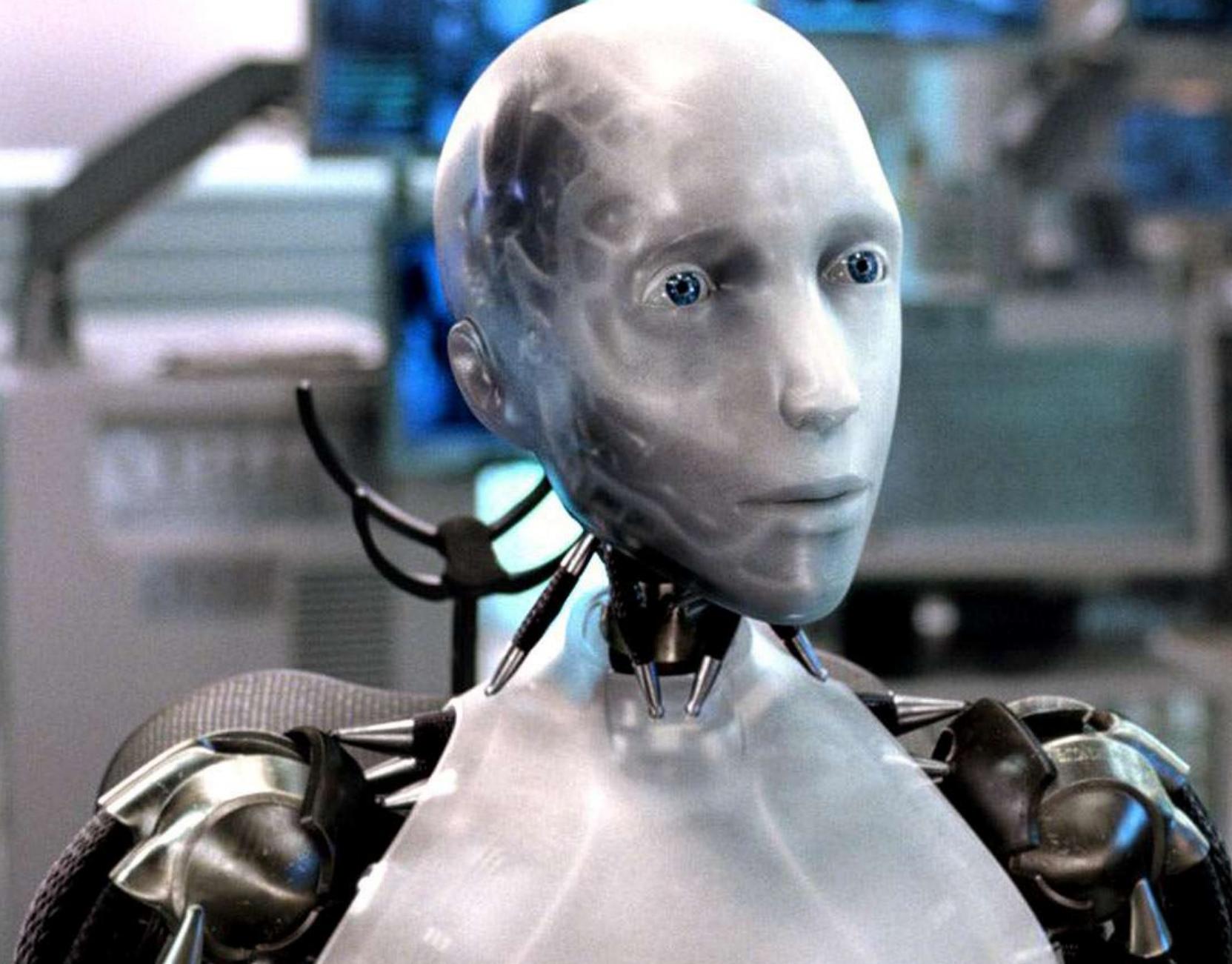


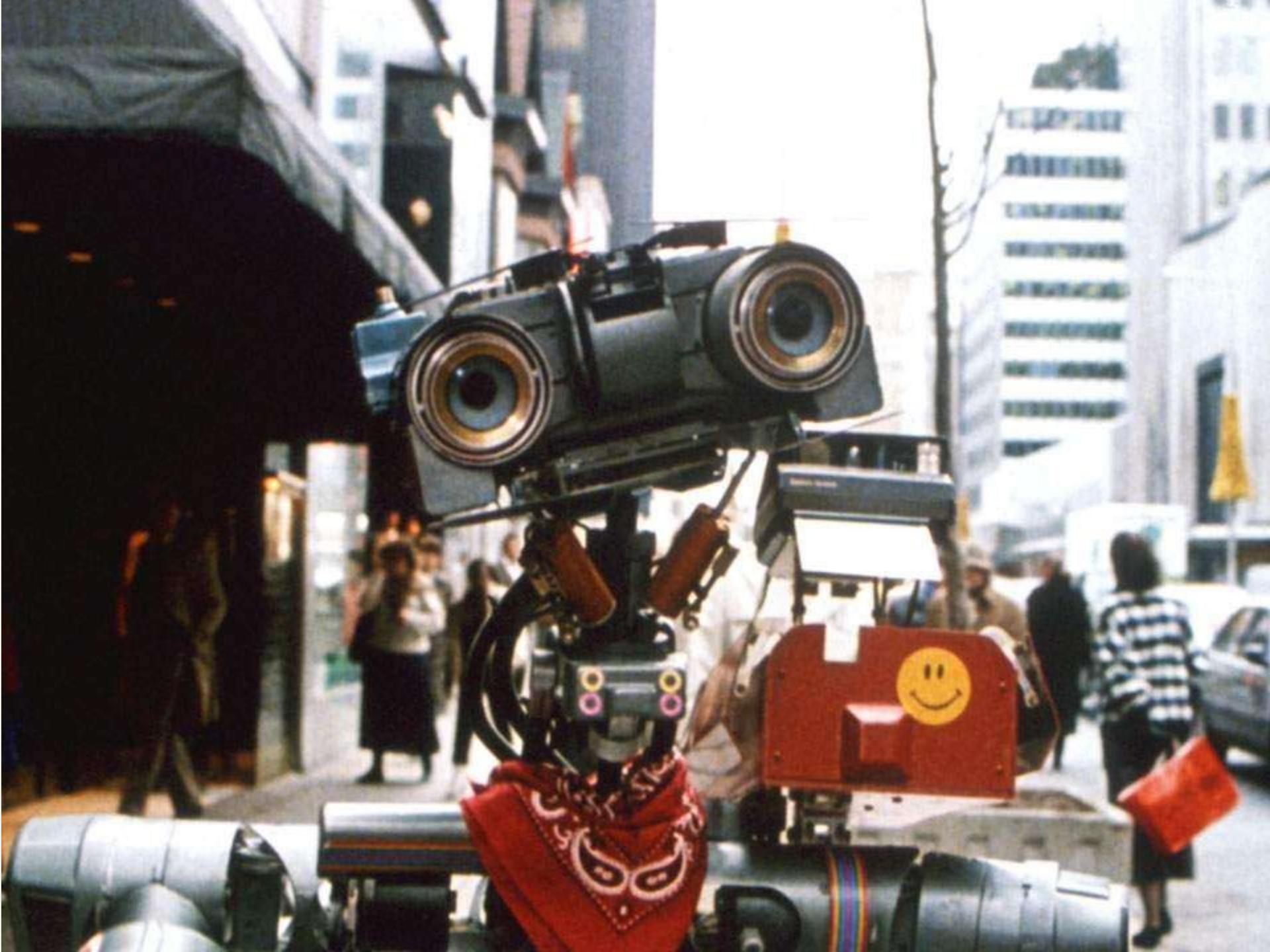


What do these robots have in common?

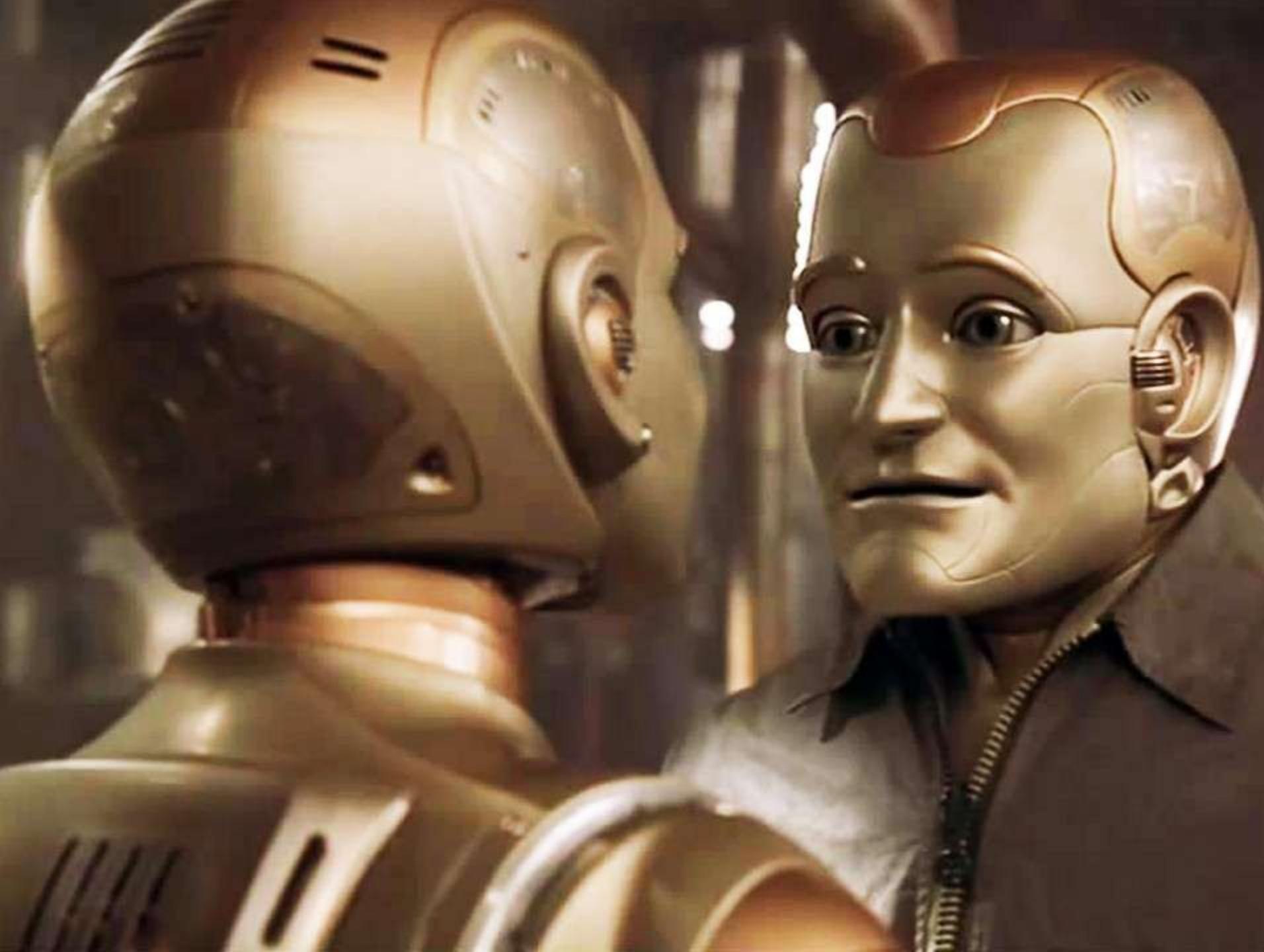
... they are unaware of what people do, think and want

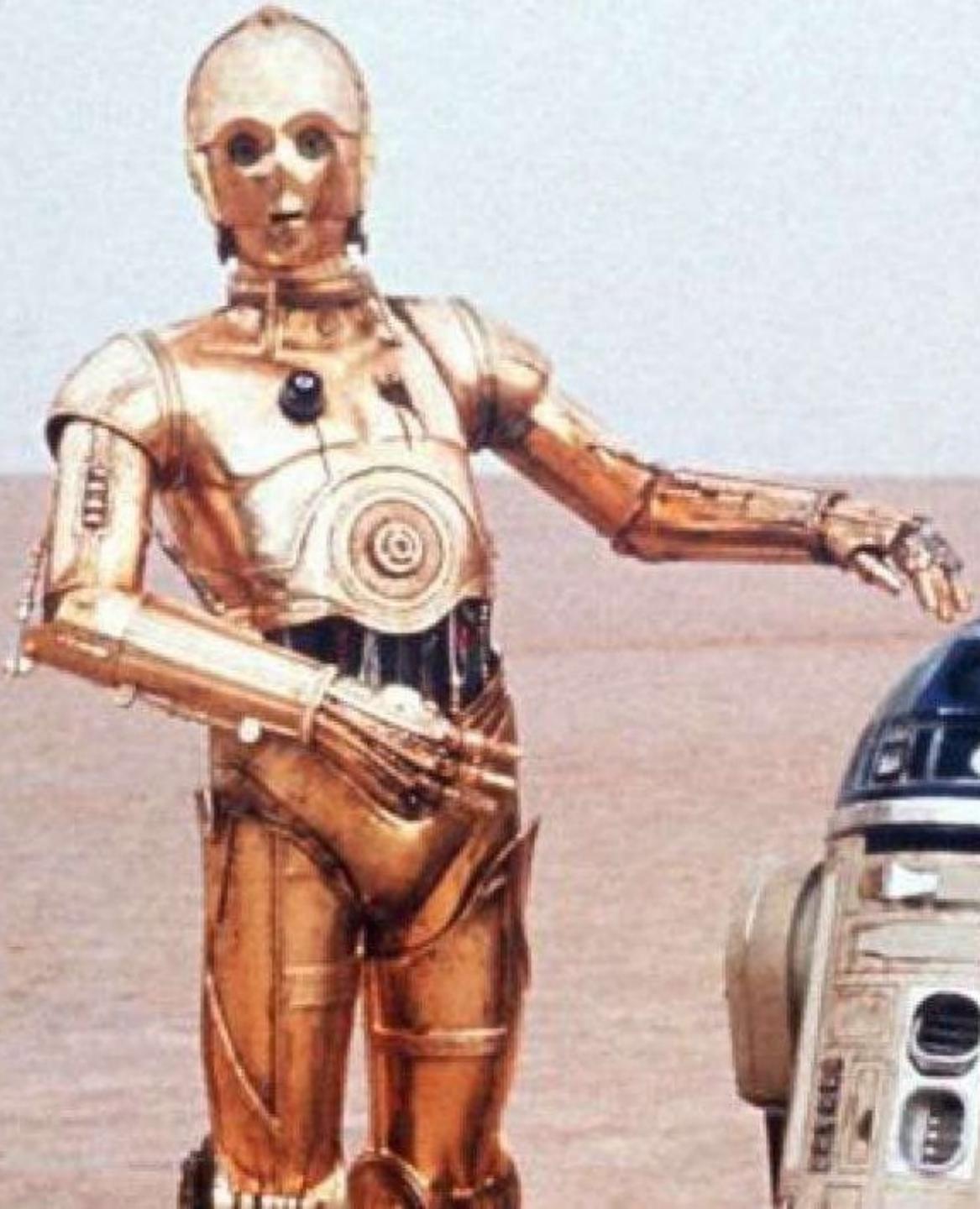
... they are limited in showing what they do, think and want.

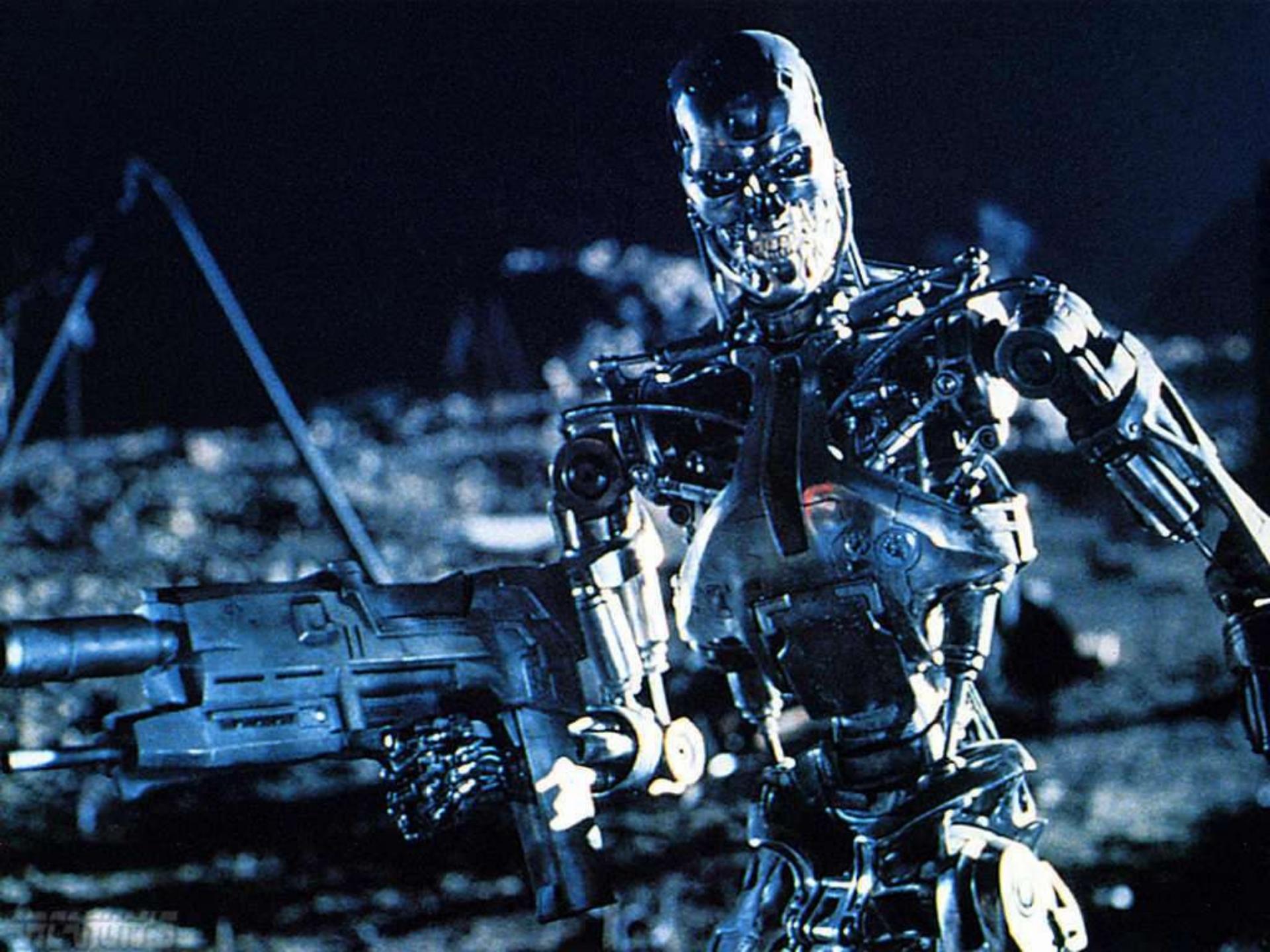












Non-social machines:

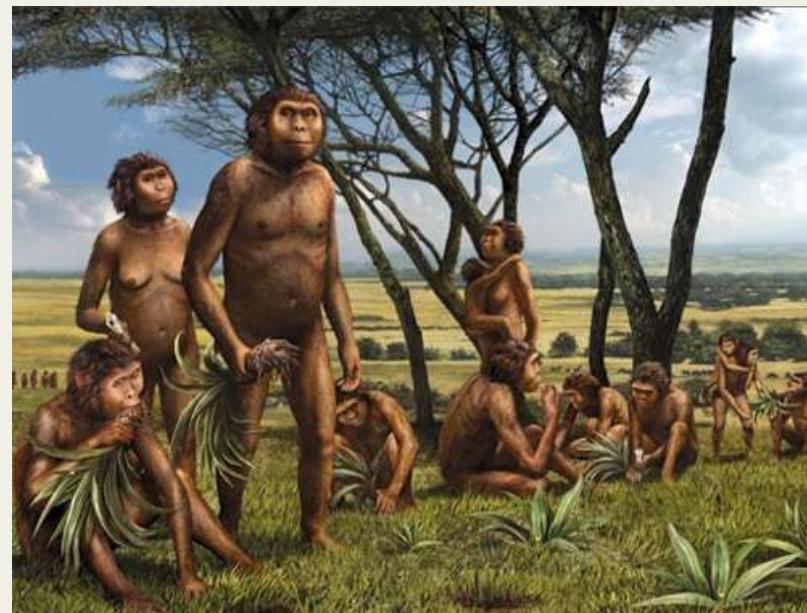
- None of current service robots are able to interact in a social manner with people.
- Social interaction
 - Understand spoken instructions.
 - Have a conversation.
 - Understand gestures.
 - Display and interpret emotions.
 - ...
- They haven't progressed much beyond household devices.



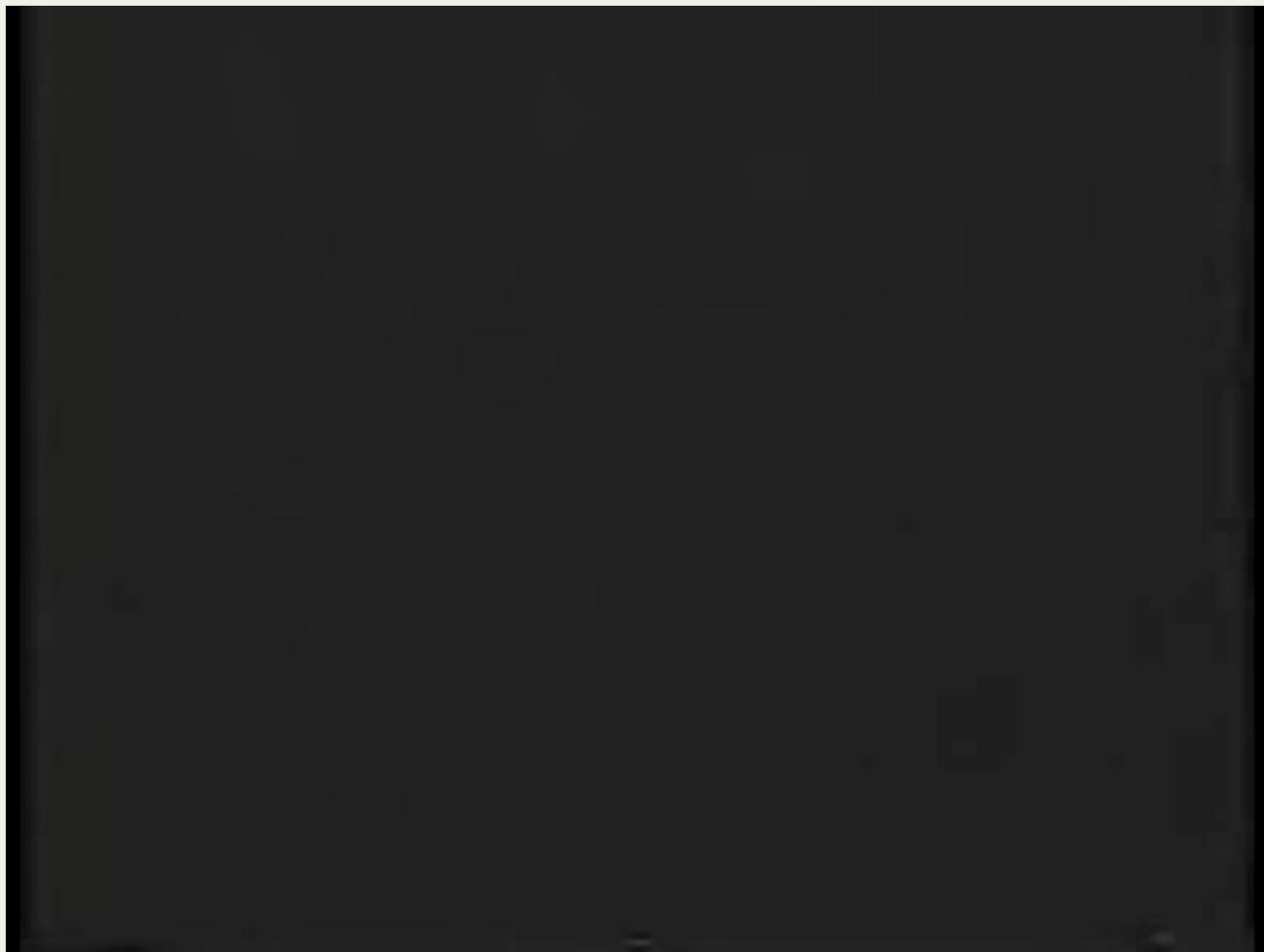
Why social robots?



- We are social
 - Machines that use the same communication channels will be easier to interact with
 - Humans have evolved over million of years as a social species
 - Human intelligence is the largest part the result of our social cognition
 - A lot can be gained from seeing cognition as resulting from social interaction: from brain to body to interacting bodies



Attribution of Intention: Heider & Simmer (1994)



Ever talked to your computer or your car?

- We attribute human motivation, characteristics or behaviour to non-human organisms or inanimate objects.
- **Anthropomorphisation is a blessing for robot builders.**
- For example, pareidolia
 - Seeing animal or human features in objects and random patterns.

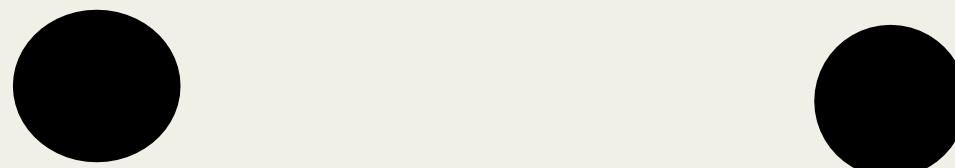


















What is
HRI?

Proposed definitions?

What is HRI?

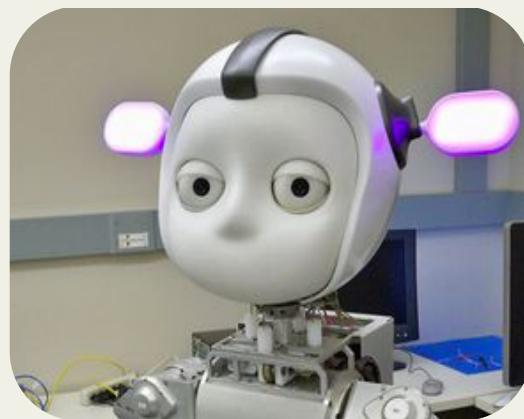


Goodrich & Schultz

2007

"Human-Robot Interaction (HRI) is a field of study dedicated to understanding, designing, and evaluating robotic systems for use by or with humans" (Goodrich and Schultz, 2007, p. 204).

Design Ranges of Robots



Mechanoid

Zoomorphic

Humanoid

Android



What is HRI?



Goodrich & Schultz

2007

"Human-Robot Interaction (HRI) is a field of study dedicated to understanding, designing, and evaluating robotic systems for use by or with humans" (Goodrich and Schultz, 2007, p. 204).

"HRI is the science of studying people's behaviour and attitudes towards robots in relationship to the physical, technological and interactive features of the robots, with the goal to develop robots that facilitate the emergence of human-robot interactions that are at the same time efficient (according to the original requirements of their envisaged area of use), but are also acceptable to people, and meet the social and emotional needs of their individual users as well as respecting human values"



Dautenhahn
2014

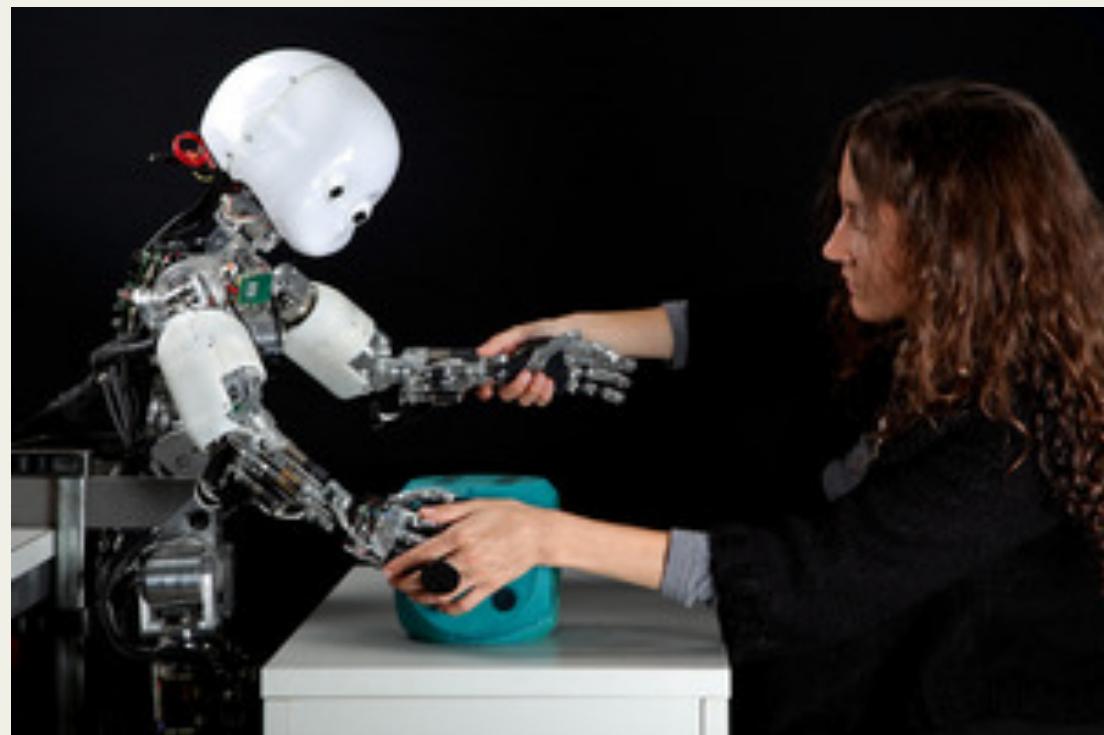
Human Perception: detection & tracking



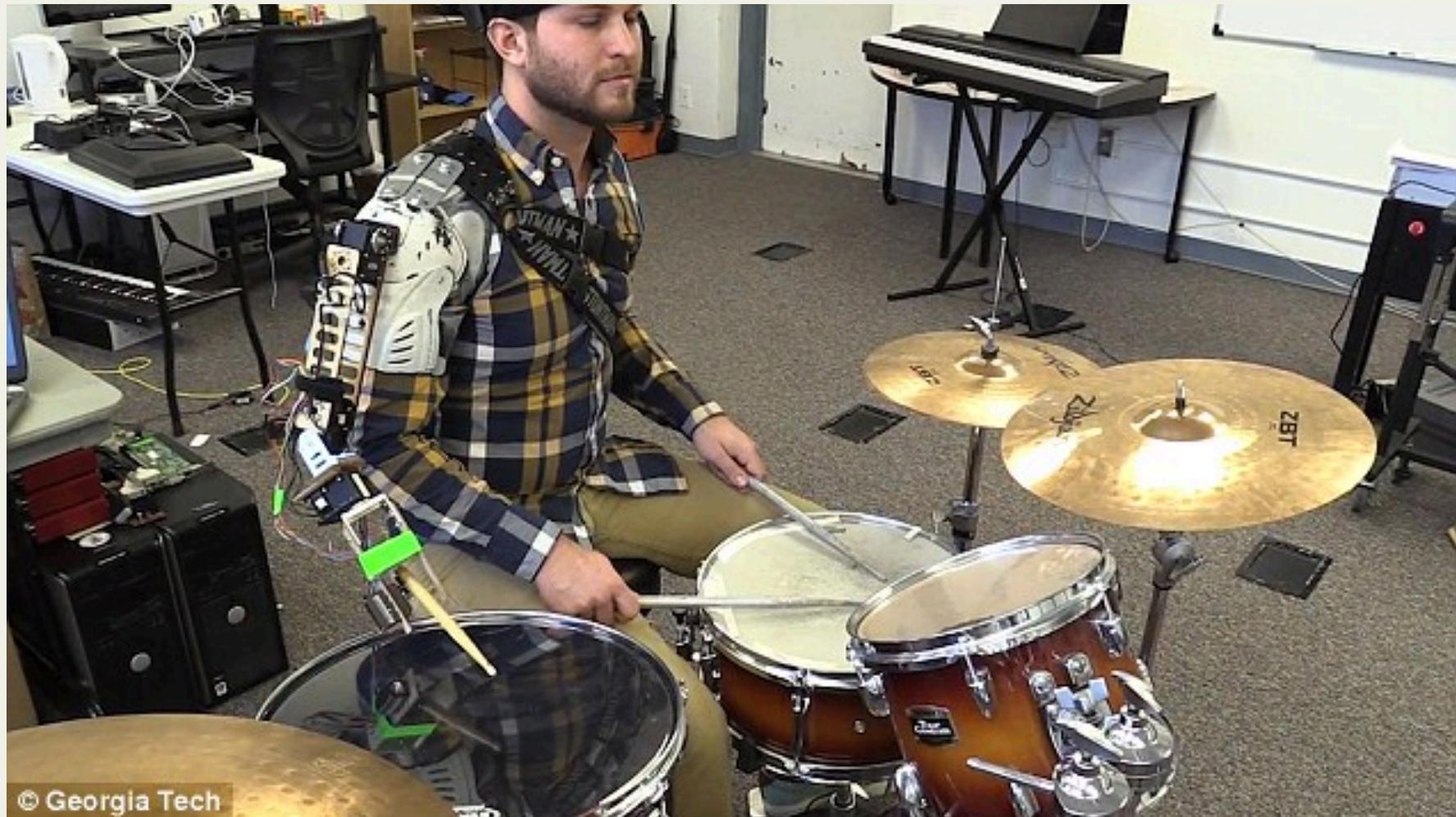
Human-Robot Collaboration:



Robot Learning:



Human Augmentation:



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Shared Autonomy:

