HRI Reading Group

@ Instituto Superior Técnico

Meeting #5 (6 Abr 2018)

Welcome!

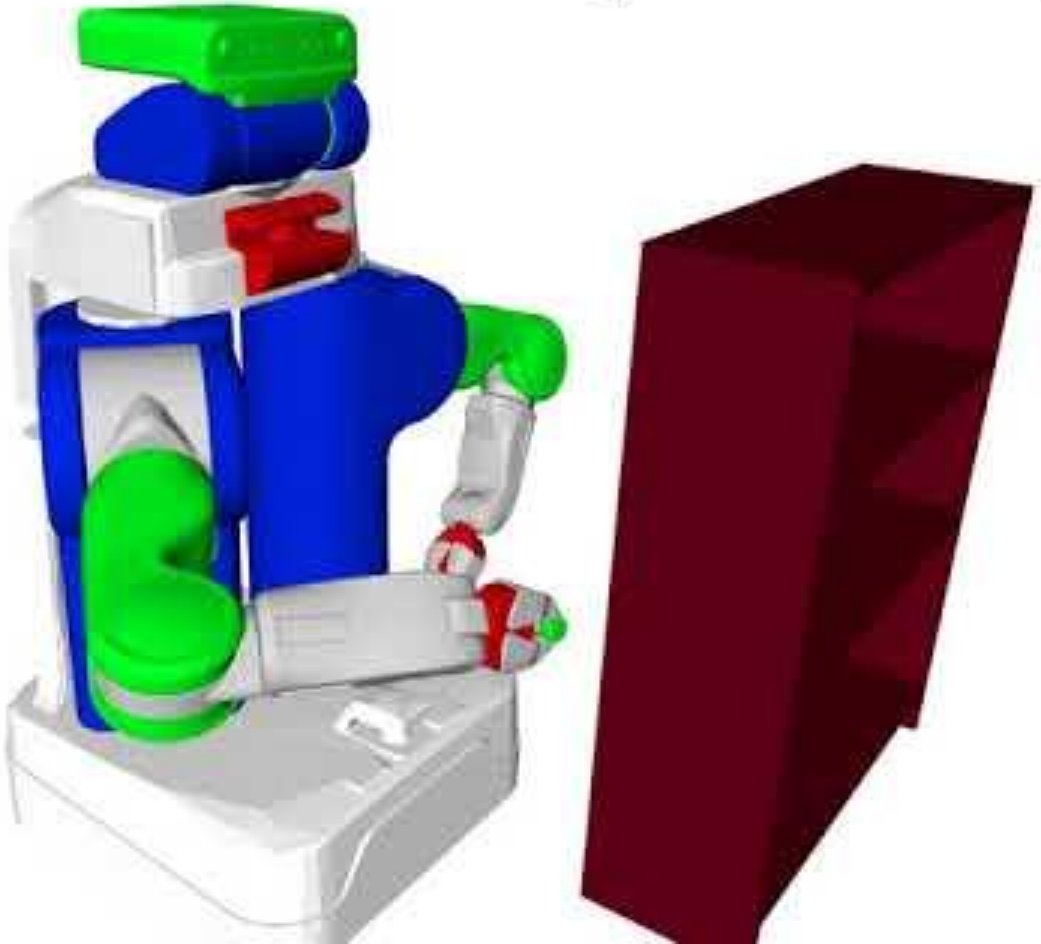
Paper

Expressing Robot Incapability

Kwon, M., Huang, S.H. and Dragan, A.D.

(2018) ACM/IEEE International Conference on Human-Robot Interaction

push sideways



Using expressive motion to express incapability

Pros

- In case of anthropomorphic robots we can infer and project ourselves to understand the robot
- Can communicate information about the physics of the world
- Often intuitive

Cons

- It can be mostly applied to physical tasks
- Ambiguity
- Doesn’t consider social perception
- Energy-usage
- Subtle motion may not be possible / legible

Solving the problem by mathematical optimization

Pros

- NO human data required
- Generalizability to tasks and robots
- Understanding

Cons

- No guarantee of a “satisfactory” answer
- Success may depend on the source of the problem (robot/object/other) related

Expressive motion vs. other non-verbal modalities

	Expr. Motion (for appearance-constrained robots)	**Expressive (non-verbal) sounds**	**Visual indicators (e.g., expressive lights)**	**Gaze, prosody, and other human-inspired social cues**
Information in an expression unit	Mostly low	High, for the right domain	High, for the right domain	?
Interference with task	High	Low	Low	Medium-High
Number of possible unambiguous expressions	Medium - Large (depending on degrees of freedom)	Low (if beeping only)	Medium	Large
Ambiguity	Medium	?	?	Medium to Low
Featured applications	Animacy	Good for distance / disruption	Internal state	Social relation

Integrating multiple modalities of communication

Modelable?

Needs data? What kind of data?

Does the combination of modalities still convey the same meanings?

Need for synchronization and modeling interaction effects.

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Meeting #6 (13 Apr 2018)

Who is bringing the refreshment next week?