Temple & Palermo team collaboration proposal

Idea

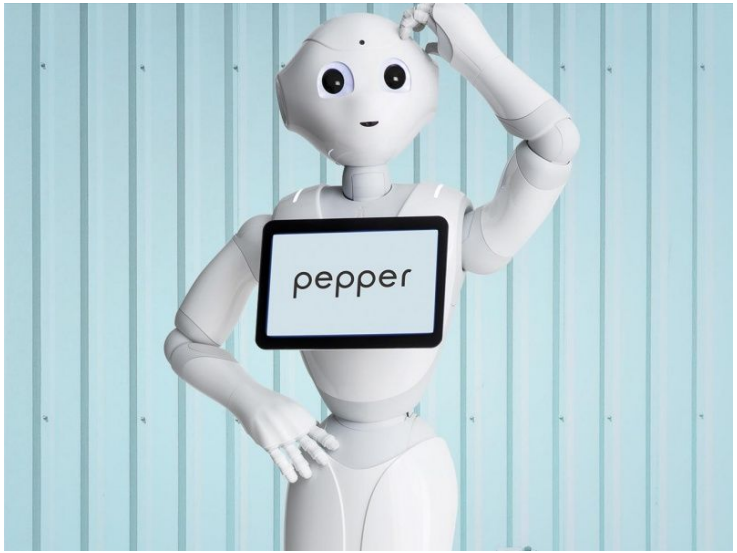
- ONA: A new NARS implementation for application purposes

- Now already tried for Smart City etc.

- How about Robotics?

Instead of BDI+NARS as before, only NARS!

openNARS
for Applications



Proposal

- Use NARS to control a robot (use simulator for reproducibility)
- Use visual expectation to identify places (fridge, microwave => kitchen?)
- Investigate benefits of visual attention in general
- Develop multi-agent framework with NARS as a ROS module
- Show telepresence examples and autonomous problem solving of a robot

Robotics example

Probably start with simple tasks:

- Avoidance of walls and objects, navigate a room
- Find way to loading station when battery gets low
- Identify other relevant places based on observed objects

Then introduce complexity:

- Pickable / Movable objects
- Other manipulation (switches, etc.?)
- Communication with users / other agents
- Problem solving tasks when “essential tasks” work well
- For example: set up a table, user-guided, for instance via telepresence

Architecture

Module for bodily functions:

- Generates Narsese goals on battery shortage, potential avoidance goal on too low distance, “day cycles” for exploration goals / play etc.

Perception channel:

- Identifies some relevant objects like the battery station, furniture etc. (using a ConvNet like YOLO)

Background knowledge:

- About its tasks, places, agents, communication etc.
  (what things are typically observed in a “kitchen” etc., NLP interface?)

What’s different

- No explicit internal map for path planning, places can simply be distinguished by the types of objects observed, “maps” as sensorimotor contingencies

- Behavior is often learned (avoidance behavior, battery station seeking, simple navigation and intent-based interaction), though innate behaviors are possible as well when necessary

- Tasks are usually simpler than with a sophisticated planner with complete knowledge, but their realization is more fault-tolerant due to adaptation

- Maybe difficult as using only NARS has not been tried before,
helper processes (object detection, bodily functions) are necessary

Thank you!