# Visual attention in a robotics cognitive systems

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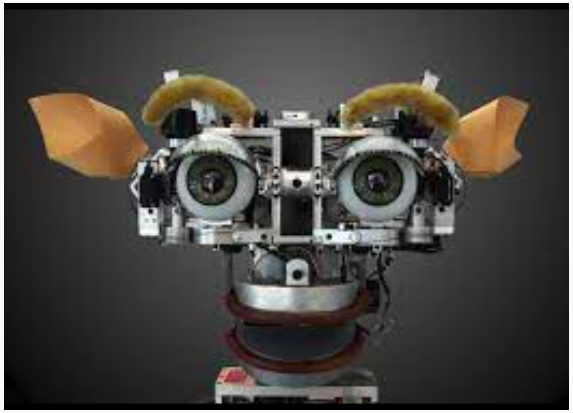
# Visual attention. What is it and why is important.

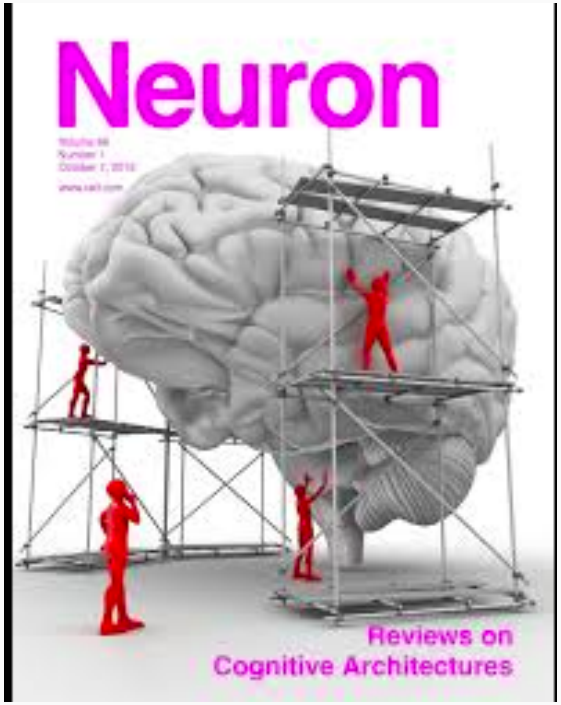
- Definitions
  - Posner, Dehaene and Tudela.
  - Rosselló and Mir.
- The characteristics
  - Attentional capacity or breadth.
  - Attentional selection.
  - Attentional intensity.
  - The attentional oscillation.
  - Attentional control.

# Previous investigations



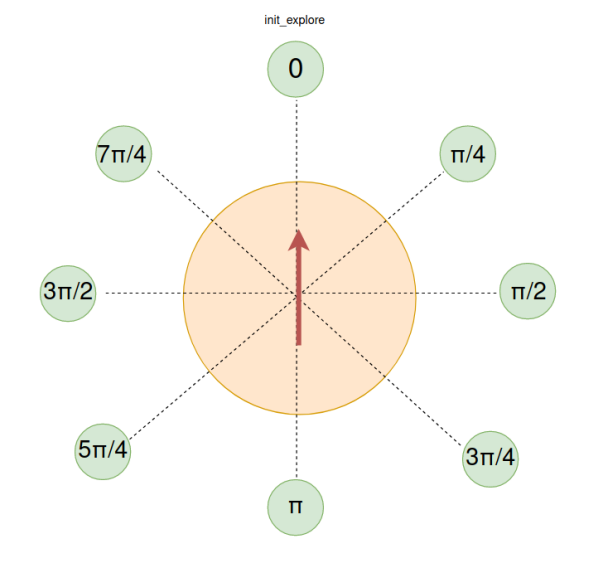
# The problem with attention in modern robotics.

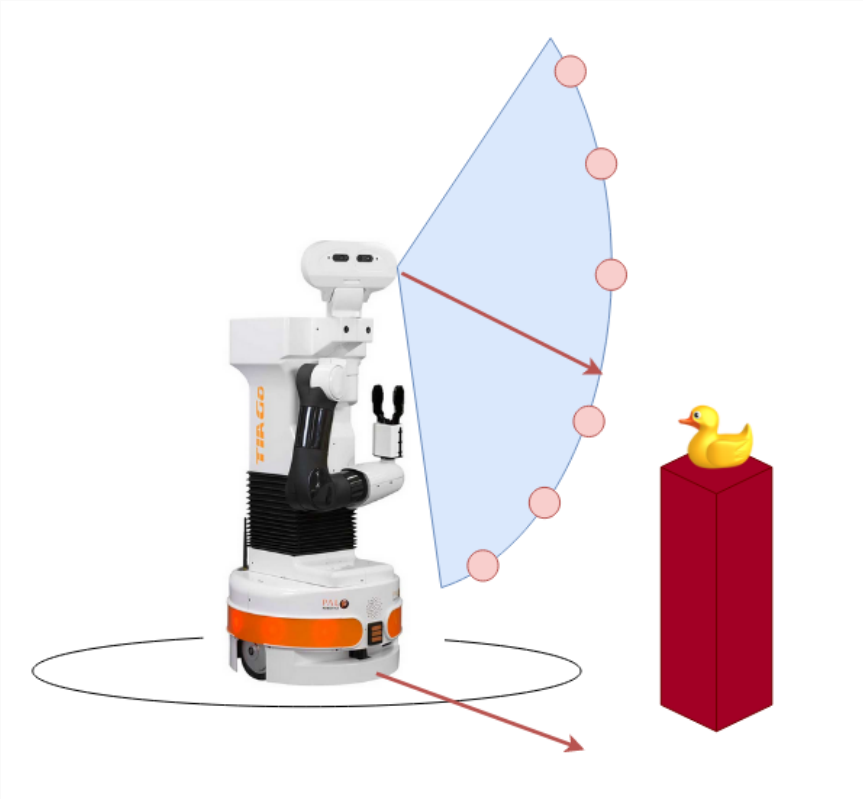
- Problem
  - Difficult integration with cognitive architectures
- One solution:
  - Cognitive architecture based on prominence



# Our environment

# Our visual attention solution

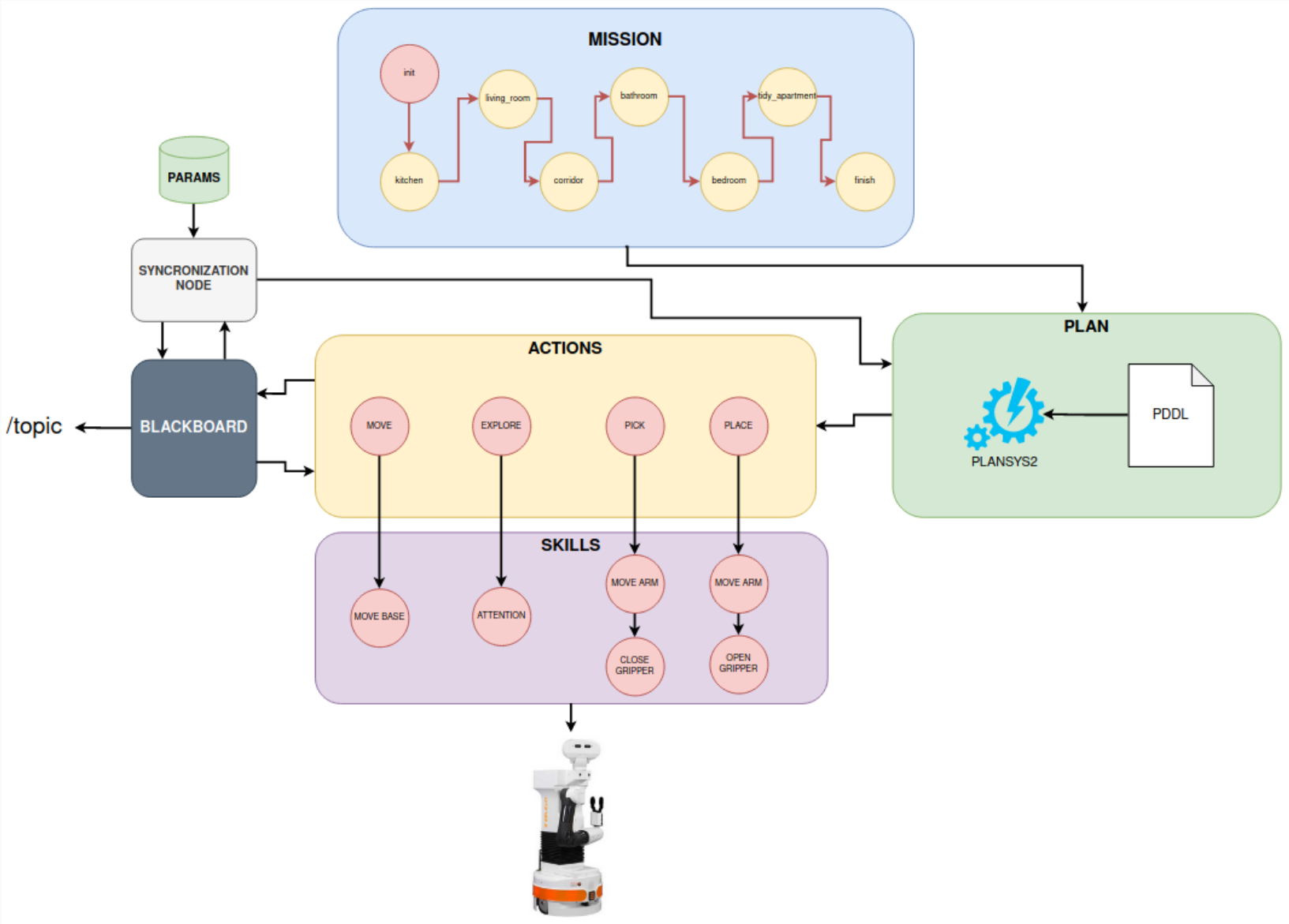


# Some code. Where the magic happends

```
1  while(explore){
2      for each 2_PI/8{
3          motors_stop();
4          tilt(from_bottom_to_top);
5          if(find_object()){
6              return object;
7          }
8      }
9      motors_spin();
10 }
```

# THE ARCHITECTURE



# Experimental implementation/results

I Select different objects.

II Spread the objects around the apartment in a different positions.

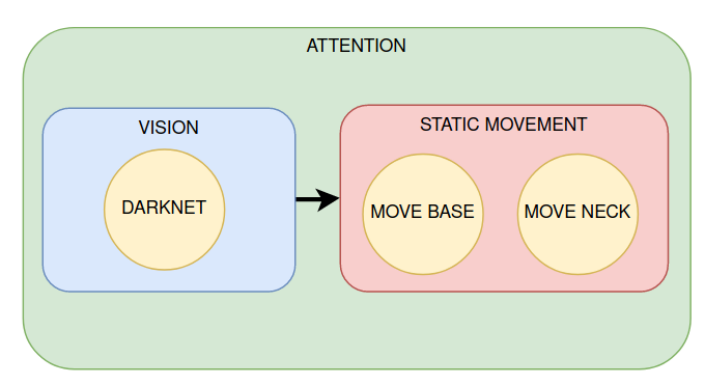
III Give a plan to the robot.

IV Measures to replan in the future:

i Get postion of the neck when an object is discovered

ii Get odometry when an object is discovered

iii Get time of explore execution



# References


- Análisis de la atención visual en las optimizaciones gráficas de un estímulo publicitario no comercial con la tecnología del Eye tracker. Universidad Autónoma de Barcelona
- Client-server approach for managing visual attention, integrated in a cognitive. architecture for a social robot. Frontiers.