

# Rethinking the Intelligent Agent Perceive-Reason-Act Loop

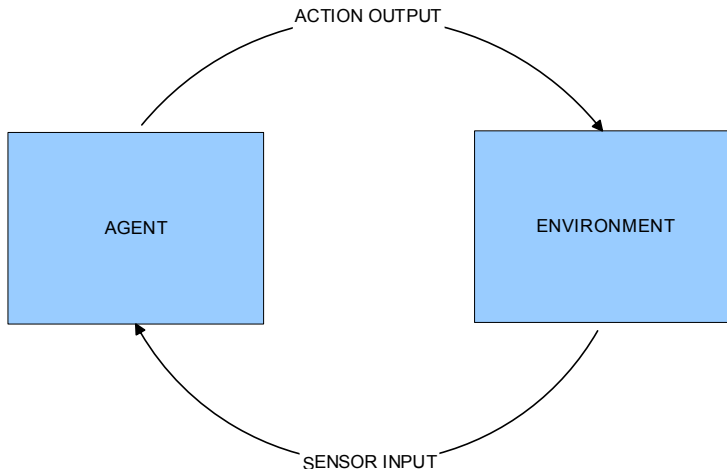
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# Agent-Environment Interaction

Key issues with current approaches to agent-environment interaction:

- Treat the agent and the environment as separate entities.
- Communication via inputs and outputs.
- Agent-Environment designs do not follow claims about:
  - Agents being situated.
  - The environment being important.

# Agent-Environment Interaction Loop



# Agent Control Loop...

## Pythonic Version of Wooldridge's Agent Control Loop

```
while True:
    observe_the_world()
    update_internal_world_model()
    deliberate_about_which_intention_to_acheive()
    use_means_end_reasoning_to_find_a_plan()
    execute_the_plan()
```

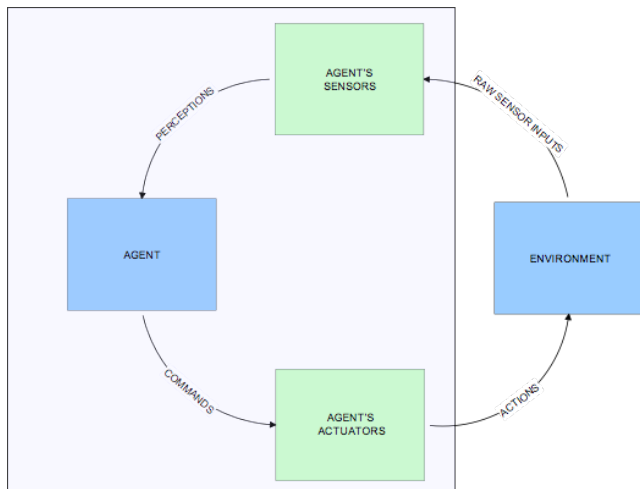
# Or the BDI Control Loop...

- Begin to look at the agent control loop and the interaction with the environment in more detail.
- The interaction between agent and environment needs to be broken down into components, step by step.
- Start looking at how inputs/outputs are generated... i.e. look at sensors and actuators.

# Let dig deeper...

Five

# A level down...



# Labels in the Environment

Seven



# We can begin to formulate a theory...

Eight

# Agent Mental States

Nine

# Agent Mental State in the Loop...

Ten

Eleven

# The Agent-Environment Loop Revisited

Twelve

# Intention Based Feedback Loop

Thirteen

Fourteen

# So what is the goal then?

Fifteen



Sixteen

# Example: Jumping a Creek

Seventeen

# How do we build such an agent?

Eighteen

# Issues (1)

Nineteen

# Issues (2)

Twenty

# Example

Twenty One