

Modul : Intelligent Agent

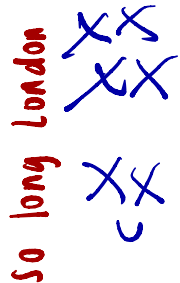
Agent & Environment

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Inteligensi Buatan
(Artificial Intelligence)



Agent & Environment



What is Agent?

Anything that can be viewed as **perceiving** its environment through **sensors** and **acting** upon that environment through **actuators**.

A robot

A factory

A web shopping program

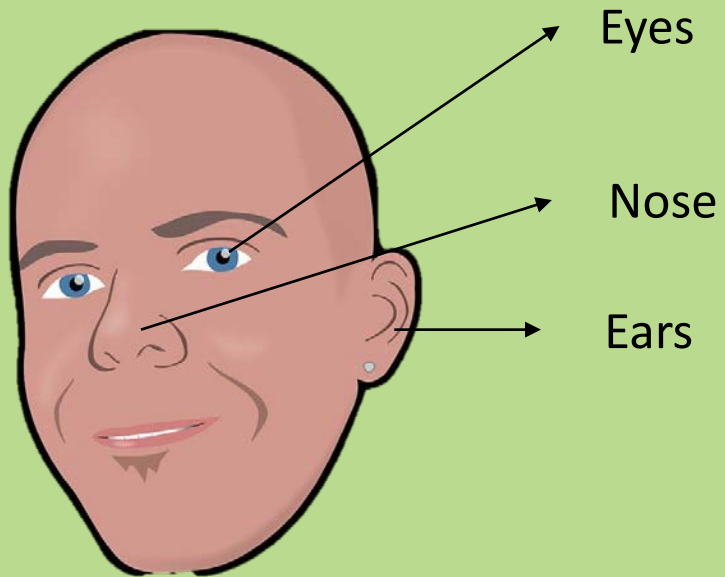
...

Computational agents that behave
autonomously

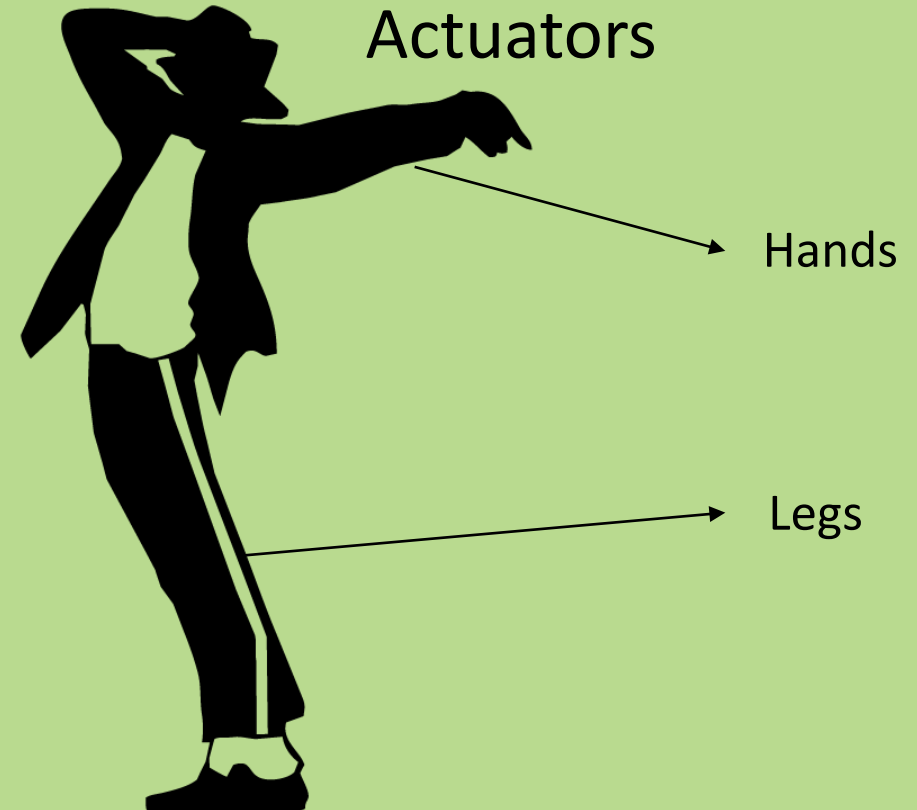


Example: Human Agent

Sensors



Actuators



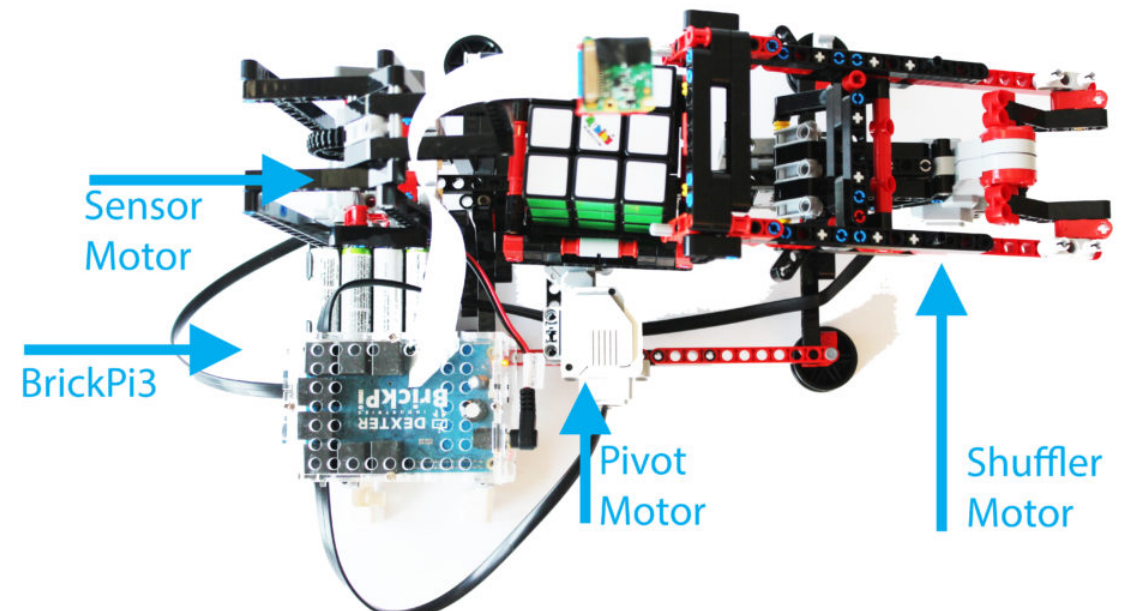
Other Example: Rubic Solver Robot Agent

Sensors

Raspberry Pi Camera Reads
the Rubik's Cube Colors



Actuators



<https://www.dexterindustries.com/projects/brickuber-project-raspberry-pi-rubiks-cube-solving-robot-project/>



Modul : Intelligent Agent

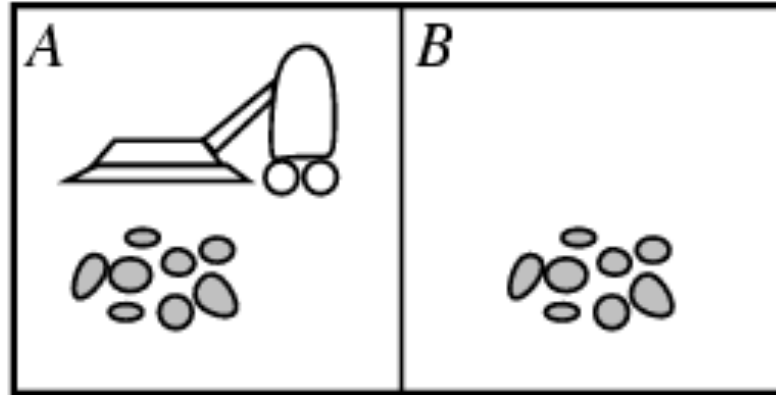
Agent Model

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Vacuum-cleaner World



Percepts: something that is perceived by the agent **sensors**
→ location and contents: [A, Dirty]

Action: something that is carried out by the agent **actuators**
→ *Left, Right, Suck, NoOp*

Intelligent agent =
cuman laknin
yg udah di program
aja, kalau dia
bikin yg lain = rusak



How to Model the Agent World ??

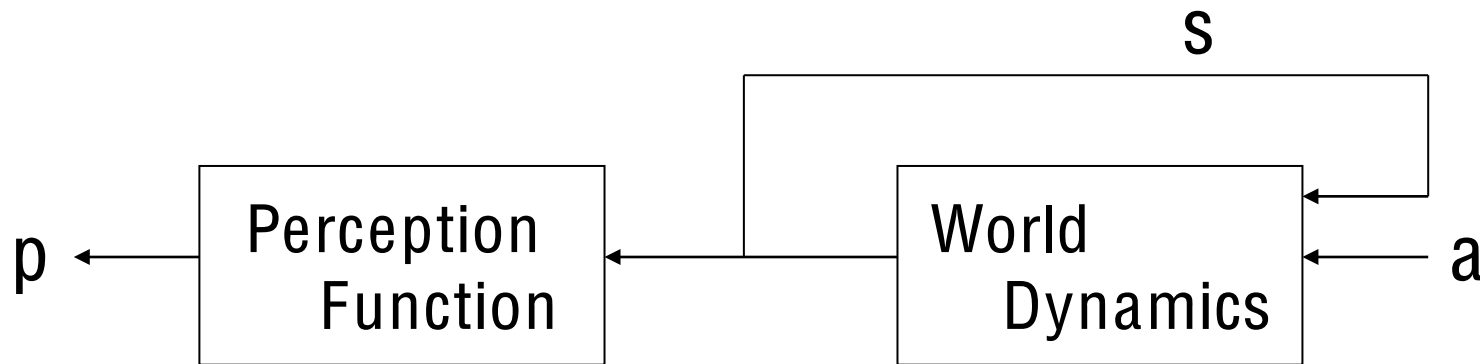
Percept Space

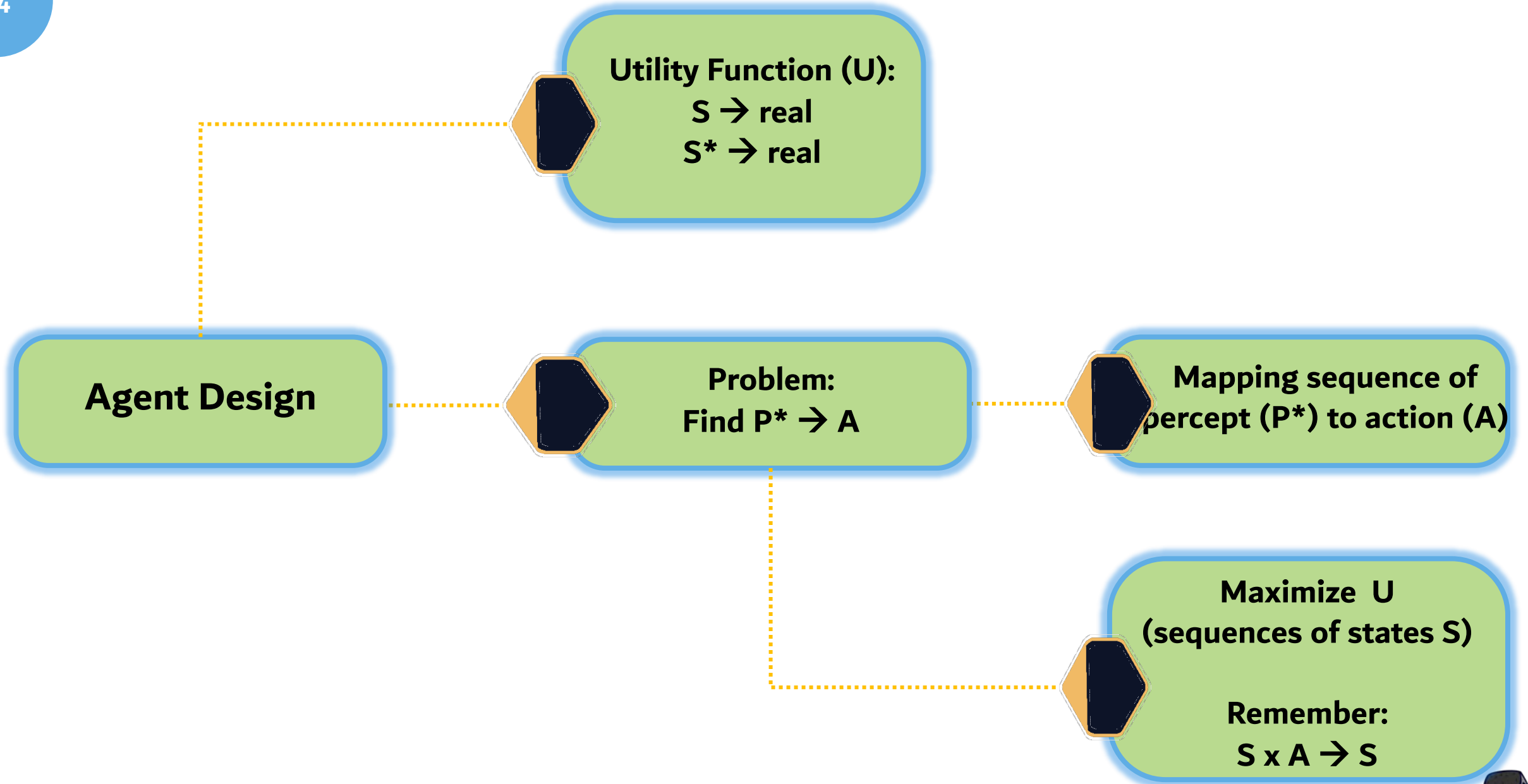
Action Space

Internal State

Perception
Function: $S \rightarrow P$

World Dynamics:
 $S \times A \rightarrow S$





Modul : Intelligent Agent

Rational Agent

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Rational Agent

Strive to **DO THE RIGHT THING**

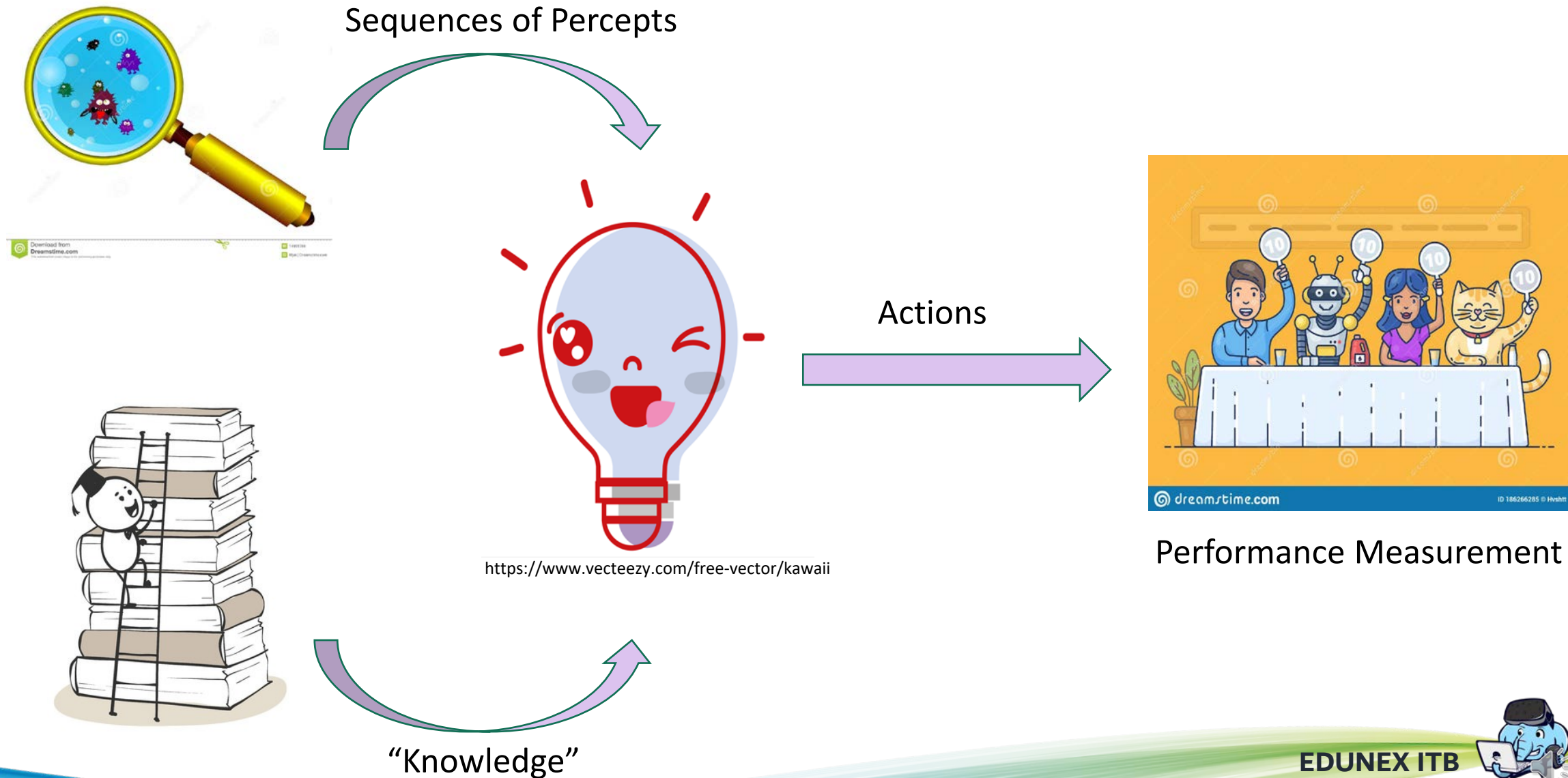


- Based on what it can perceived
- Based on what it can perform

Performance Measure:
Objective Criterion for Success of
an Agent's behaviour

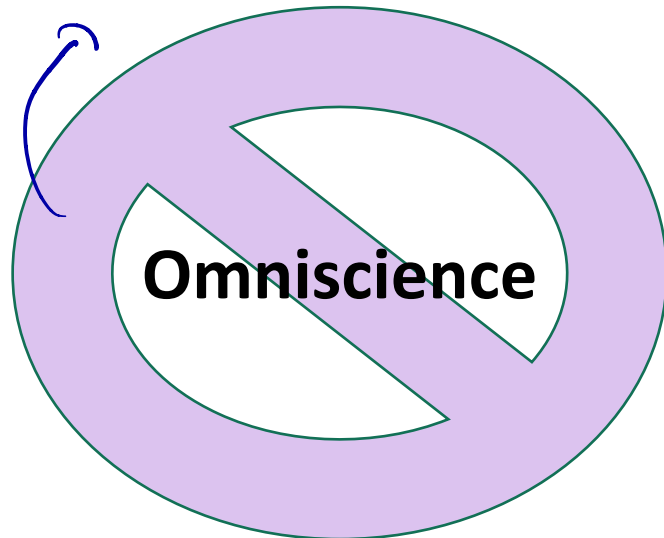
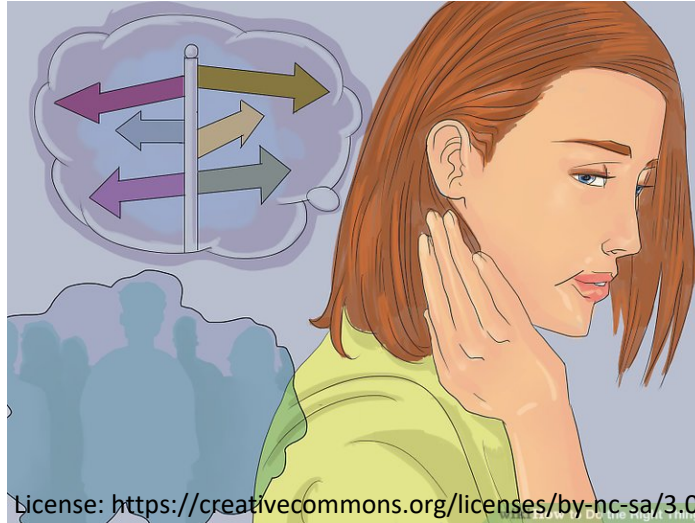


Rational Agent (2)



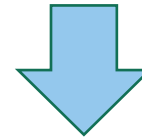
Rationality

blm tentu
tau semua,
bergantung sama
info yg kita
dpt

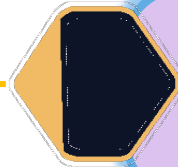


Limited Rationality

Rationality limitation:
Computational Constraint



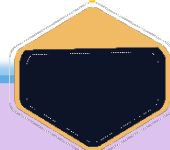
Agent Design



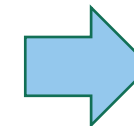
Problem:
Find $P^* \rightarrow A$



**Mapping sequence of
percept (P^*) to action (A)**



**Maximize U
(sequences of states S)
Subject to Computational
Constraints**



PEAS





THANK YOU

