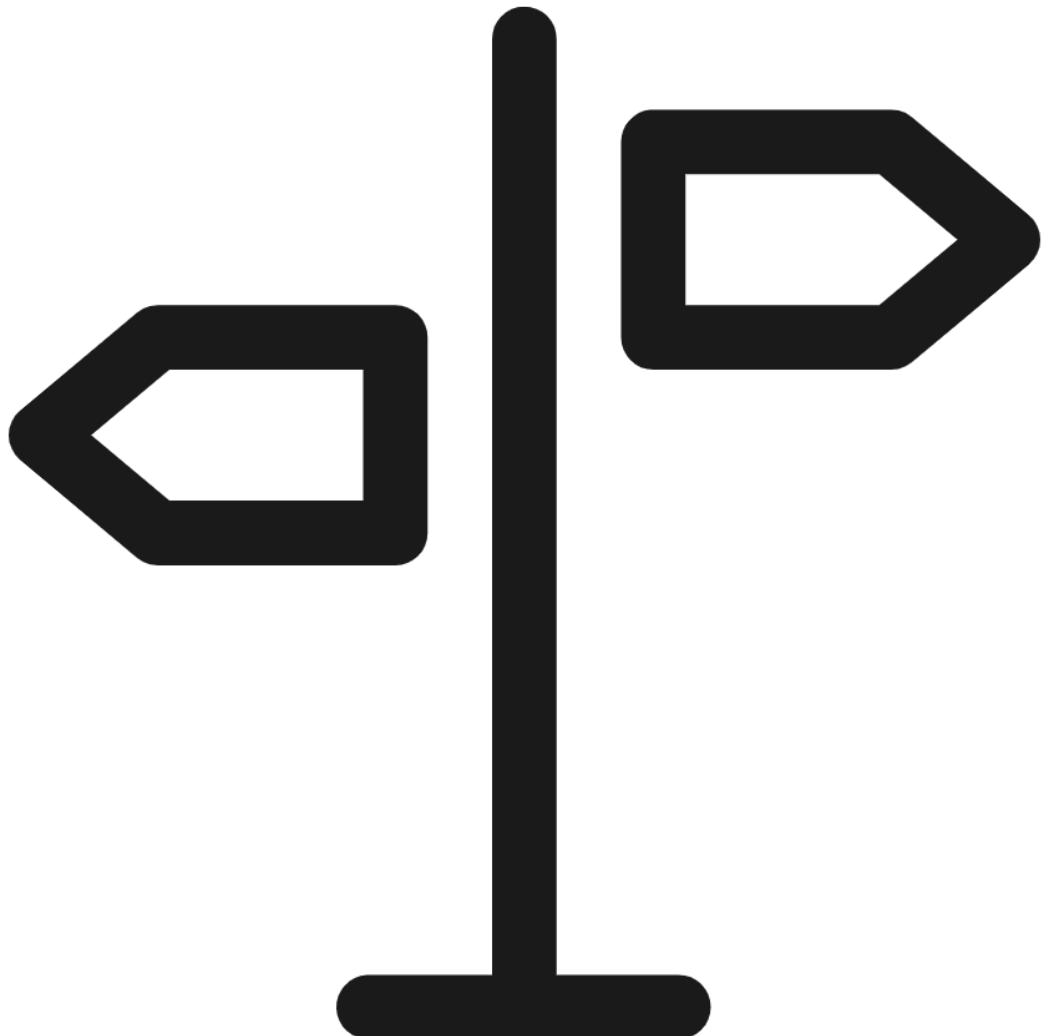


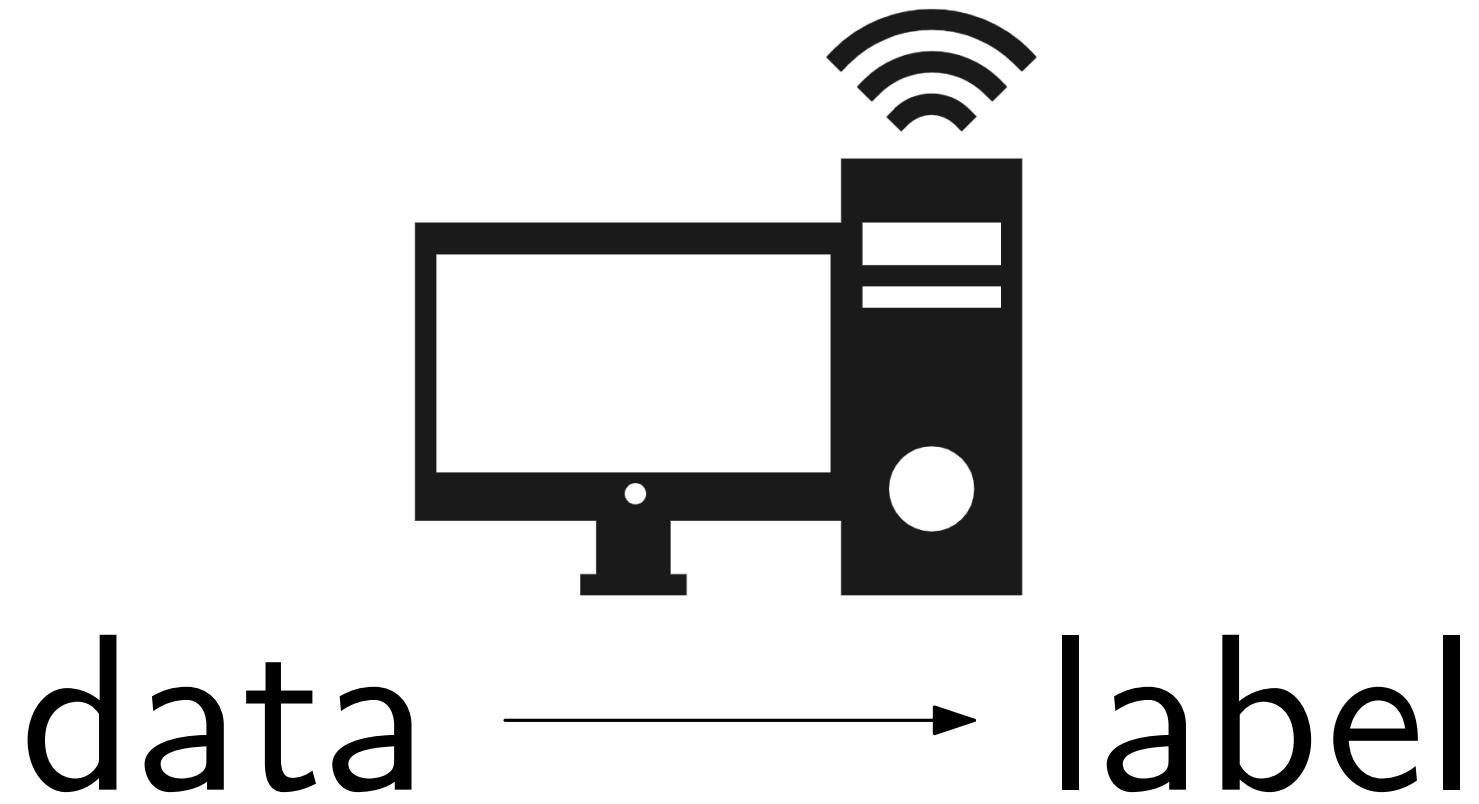
# Reinforcement Learning

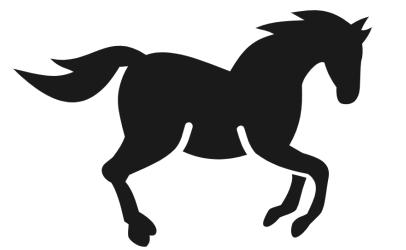
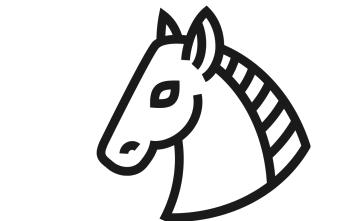
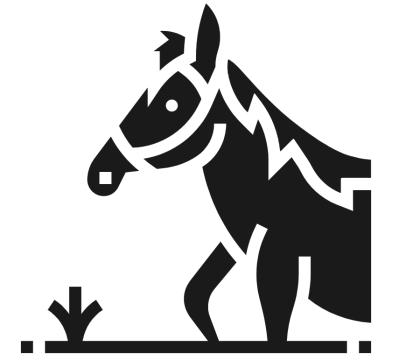


# Supervised Learning

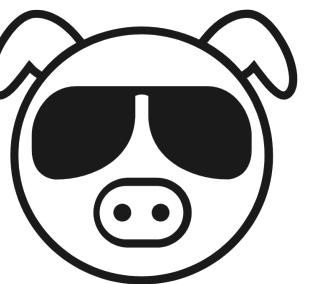
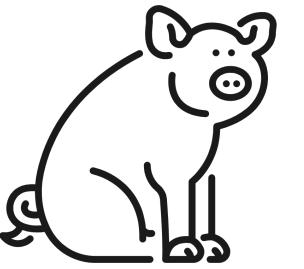
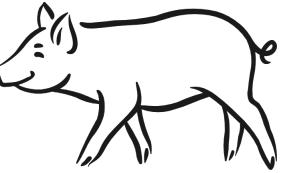


data  
label

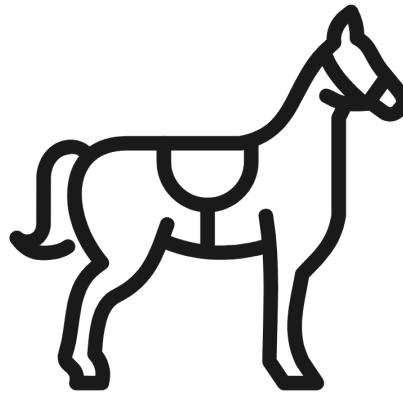




horse



pig

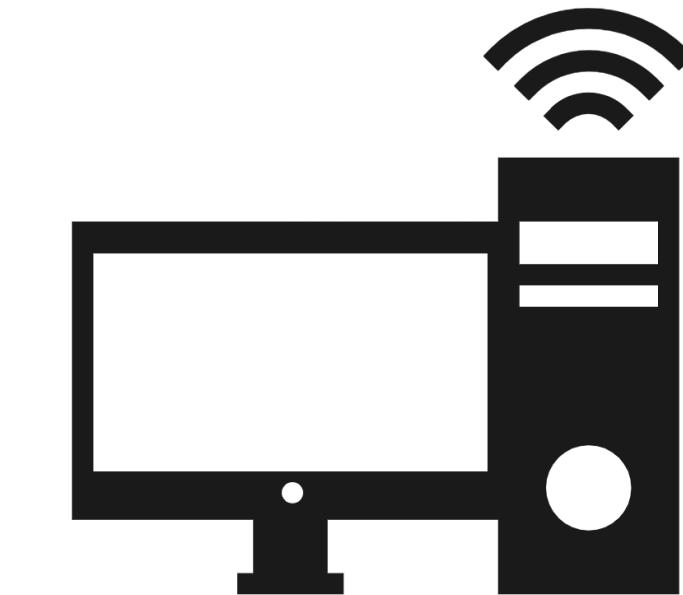


What is this?

# Unsupervised Learning

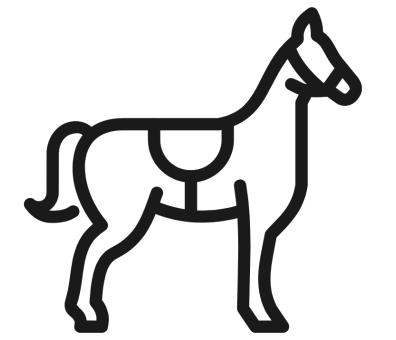
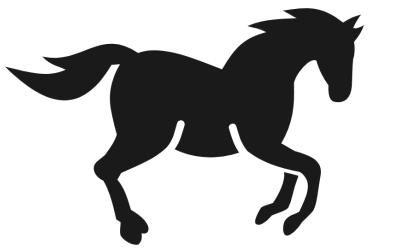
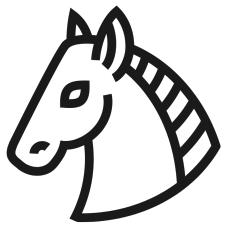
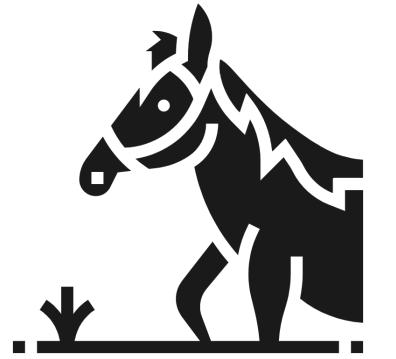


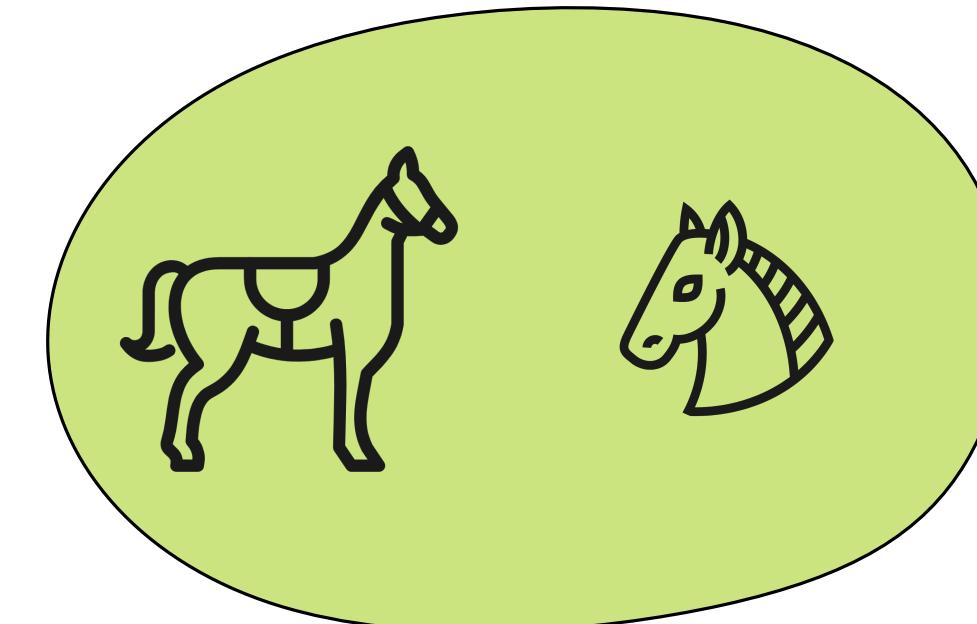
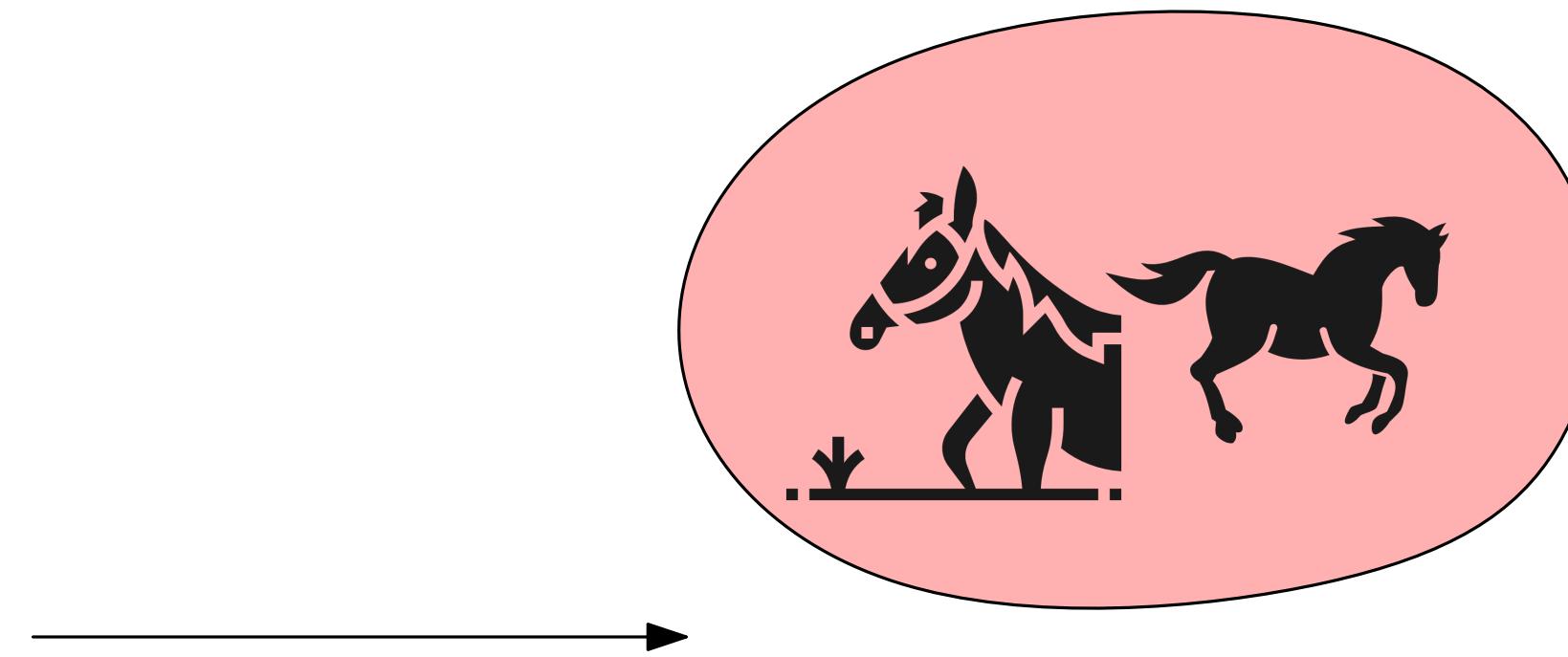
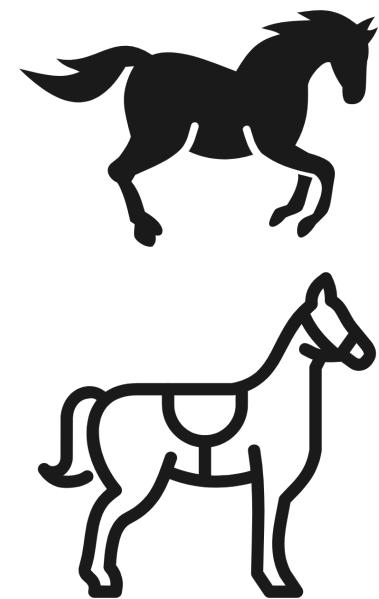
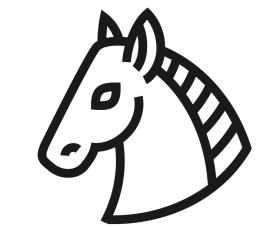
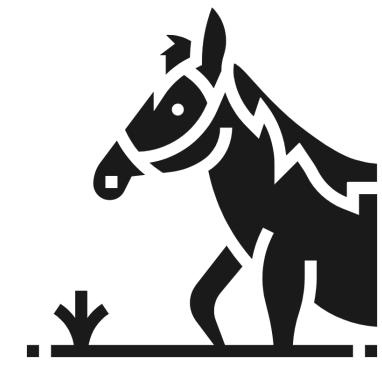
data



data → sense





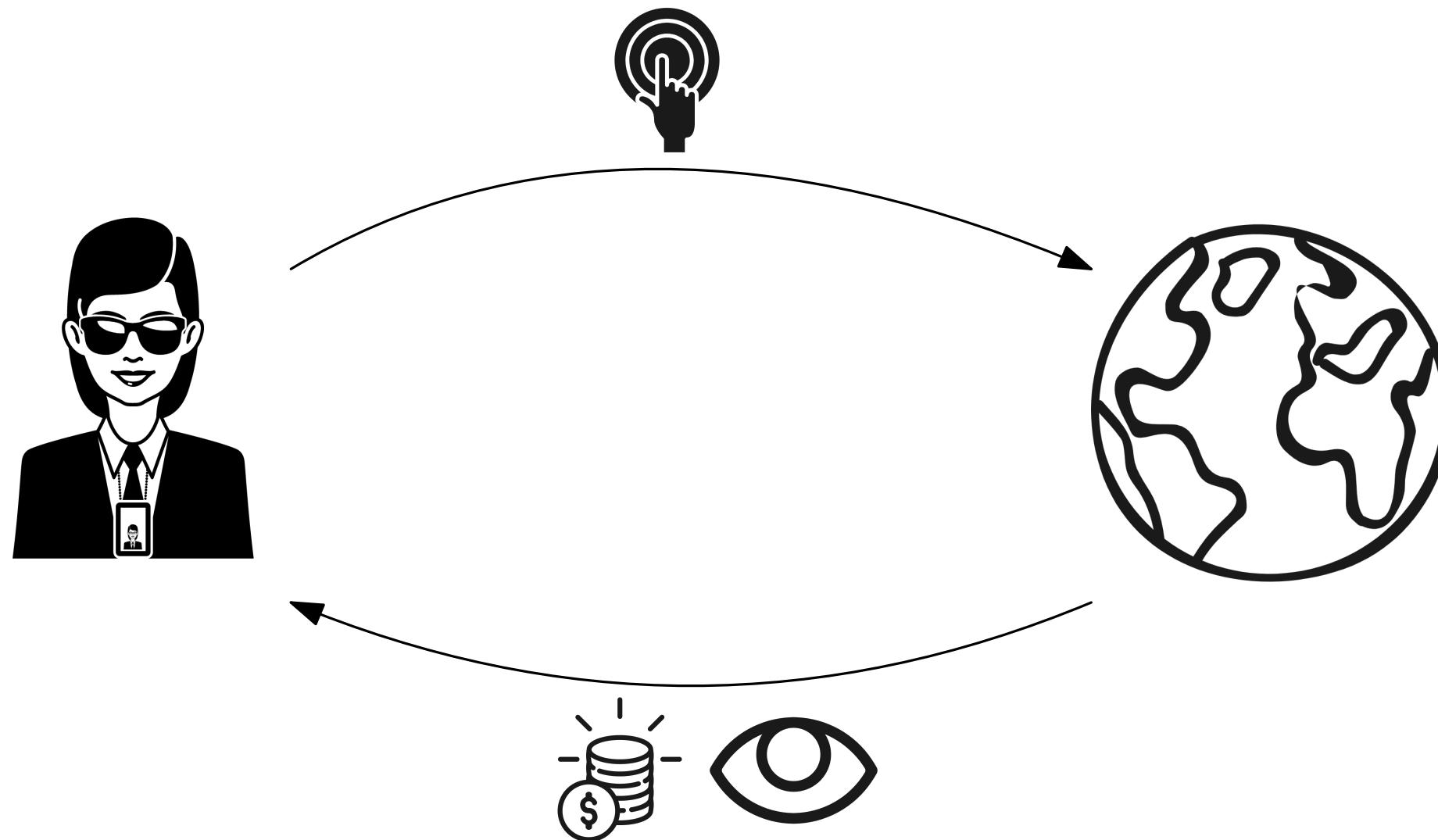


different horses

# Reinforcement Learning



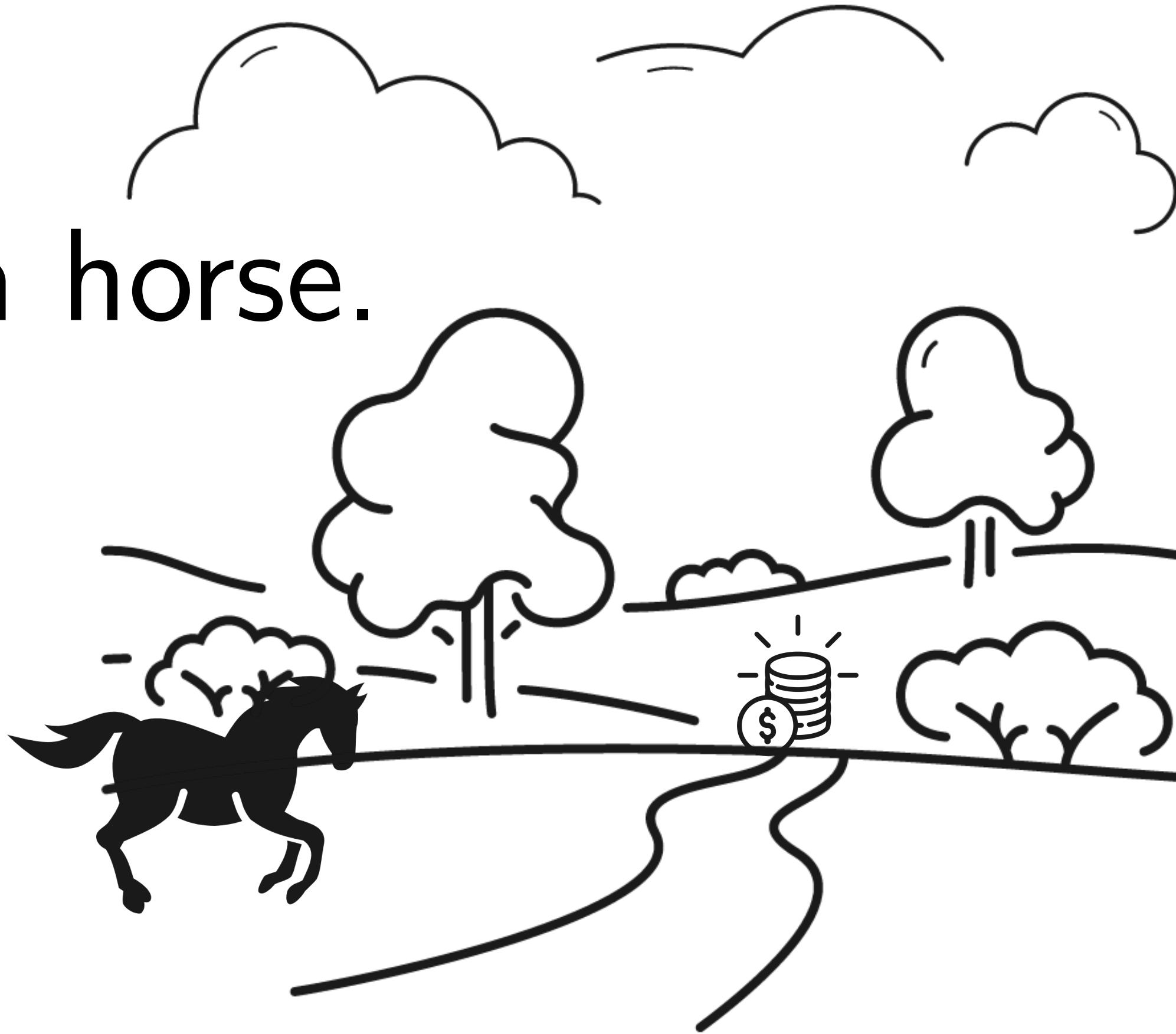
# Reinforcement Learning



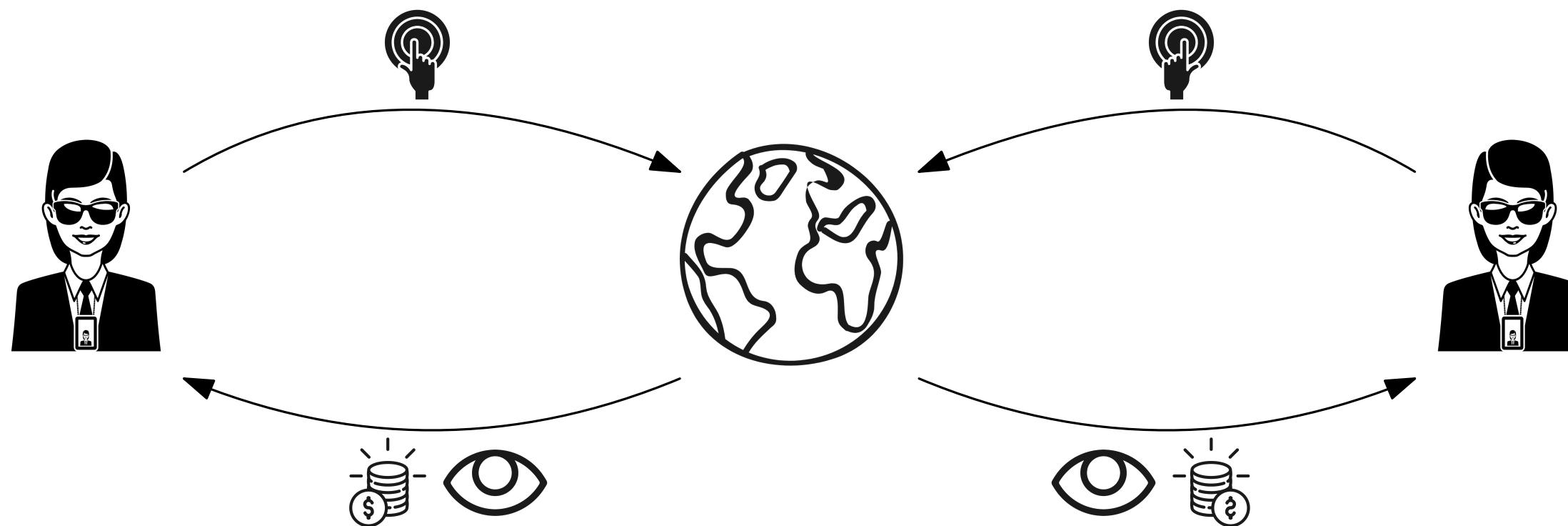
# Reinforcement Learning



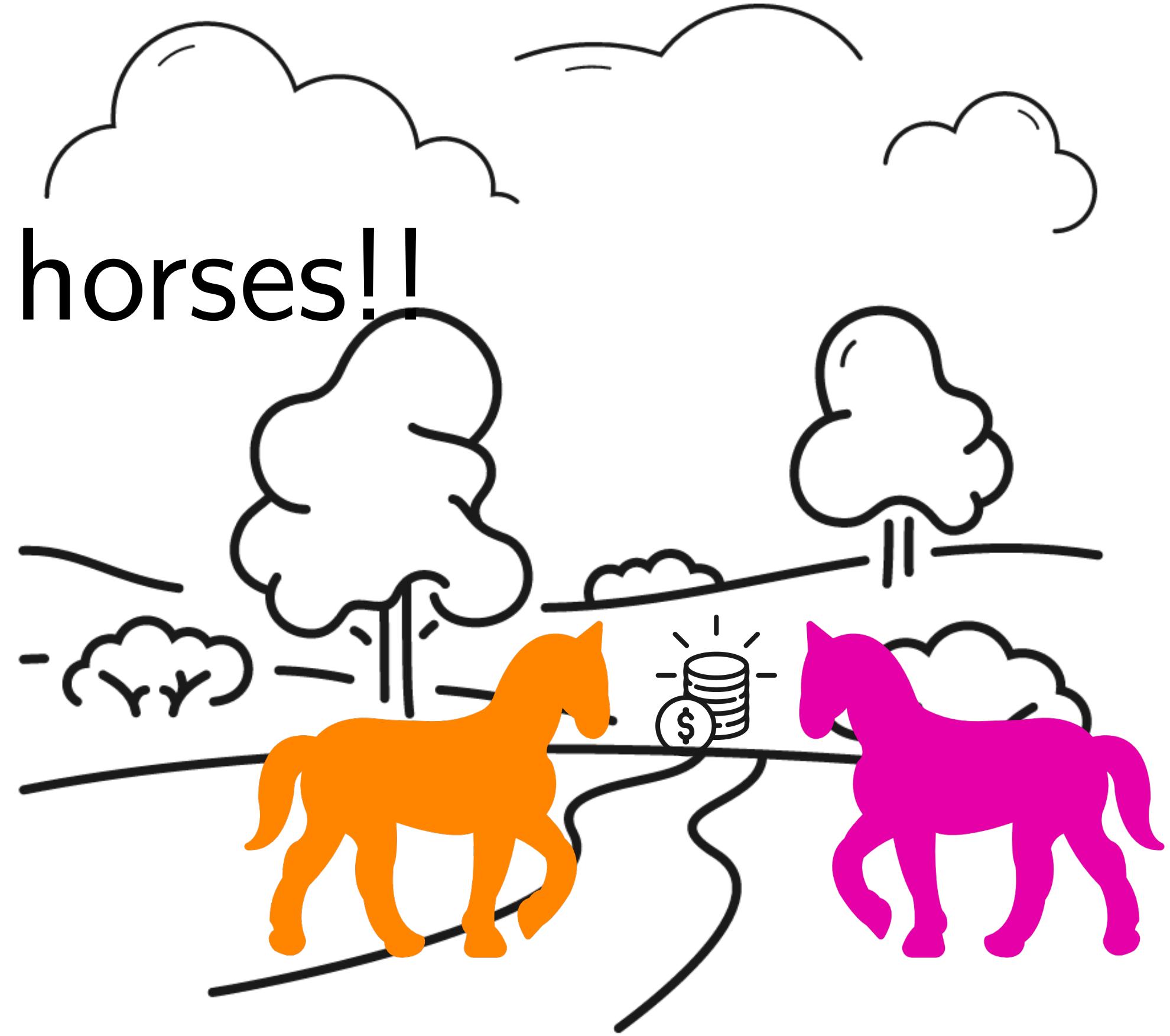
I am a horse.



# Reinforcement Learning in games



Several horses!!





# Assignment 1



## Categorize tasks

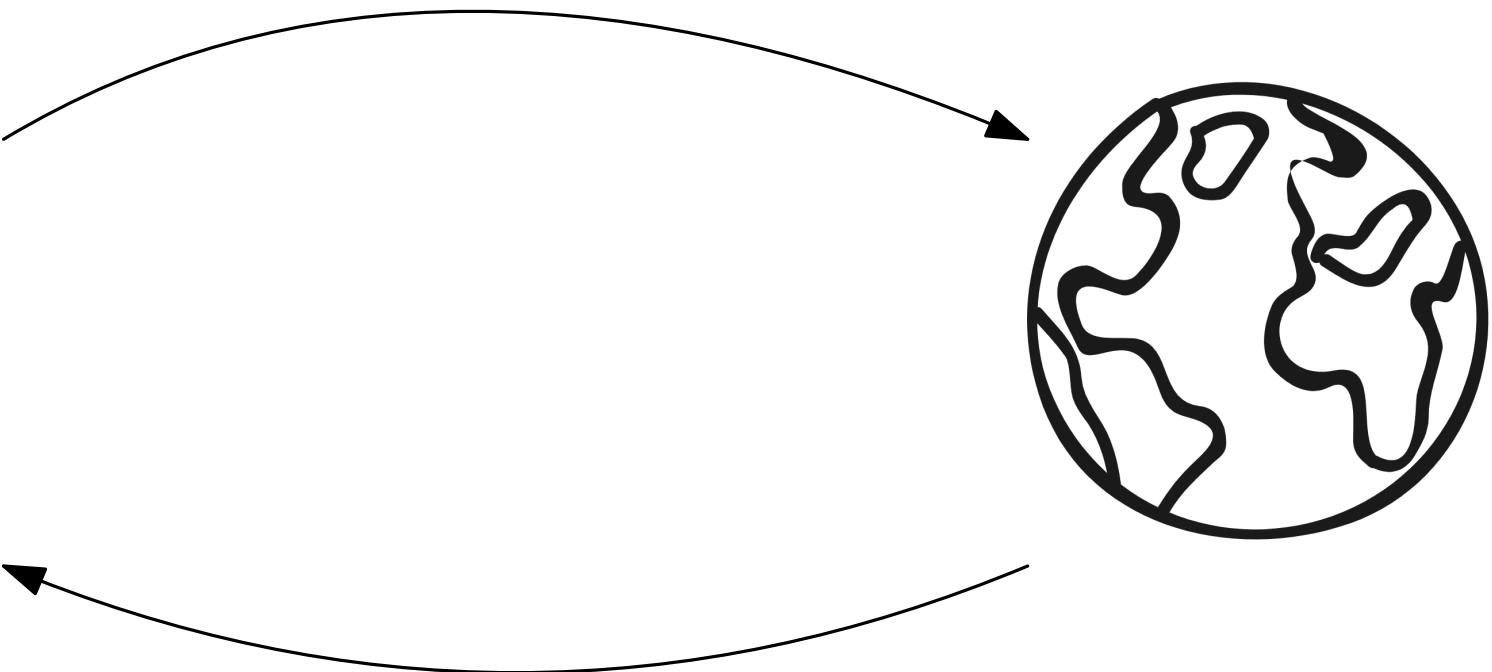
- self-driving car
- operating a vacuum cleaner
- automated customer chat communication
- generating image description
- operating a bioreactor
- detecting spam

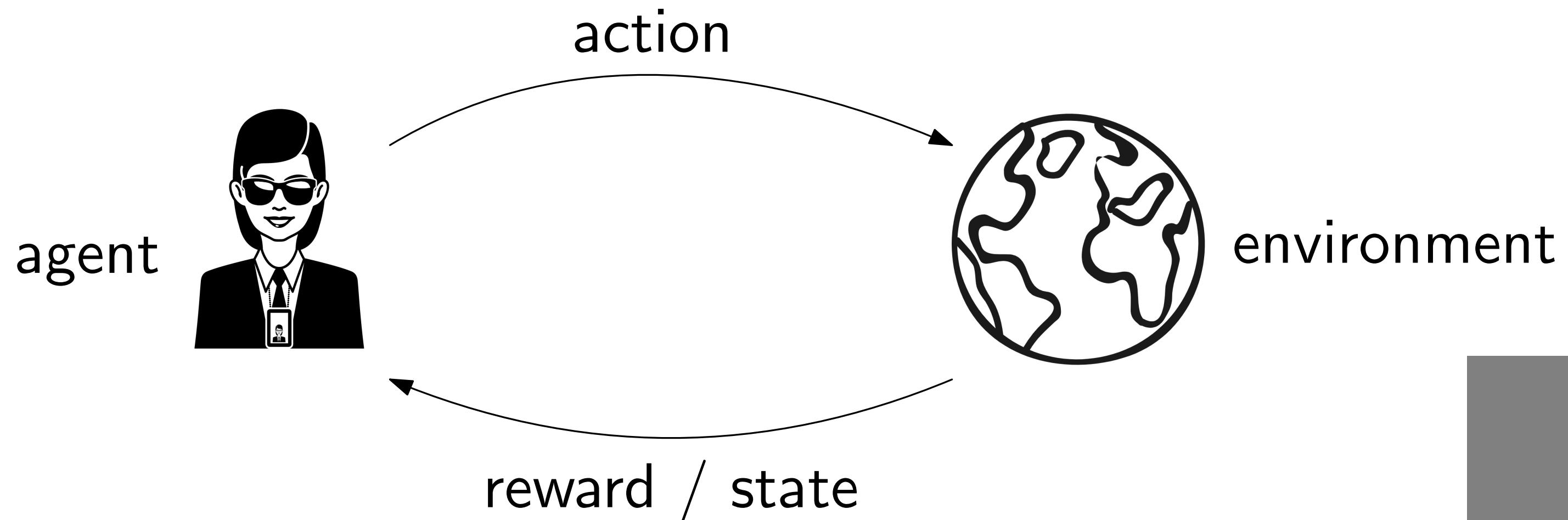


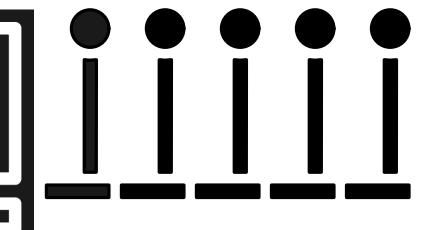
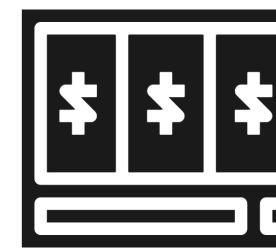
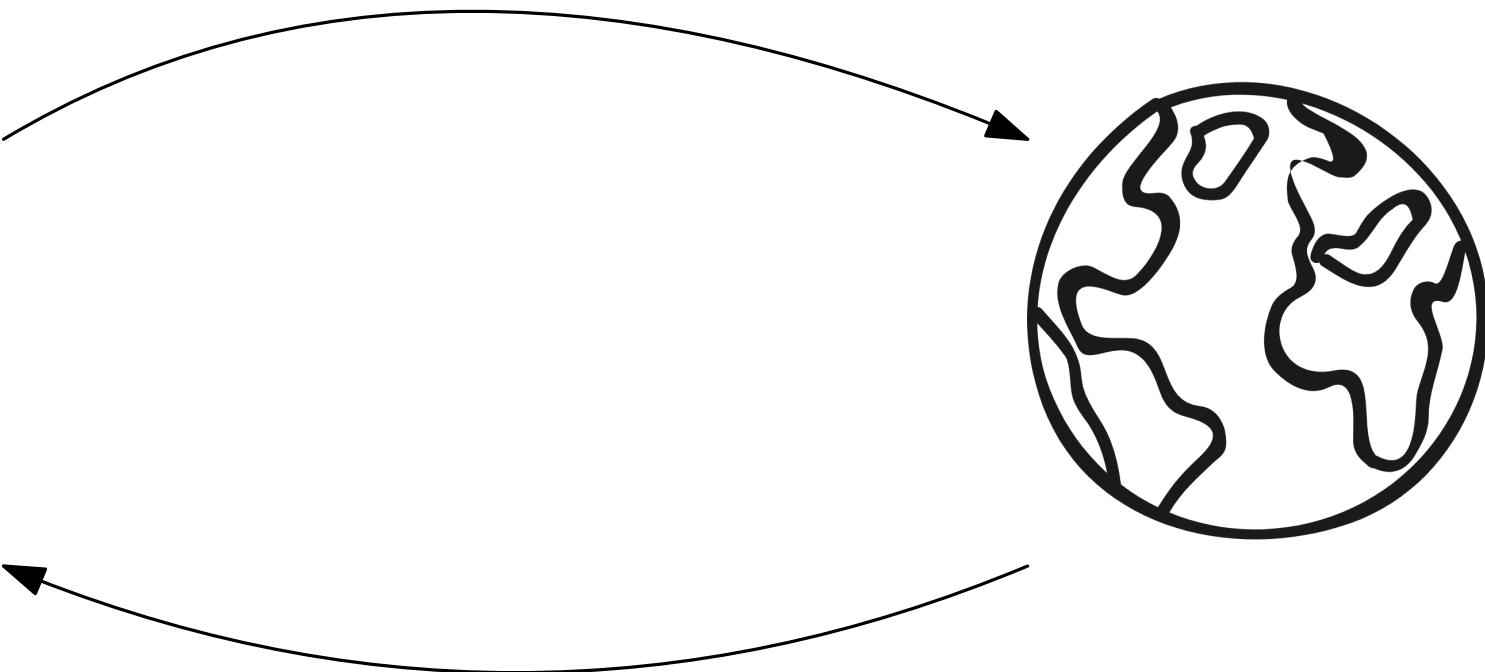
Post on  
Teams

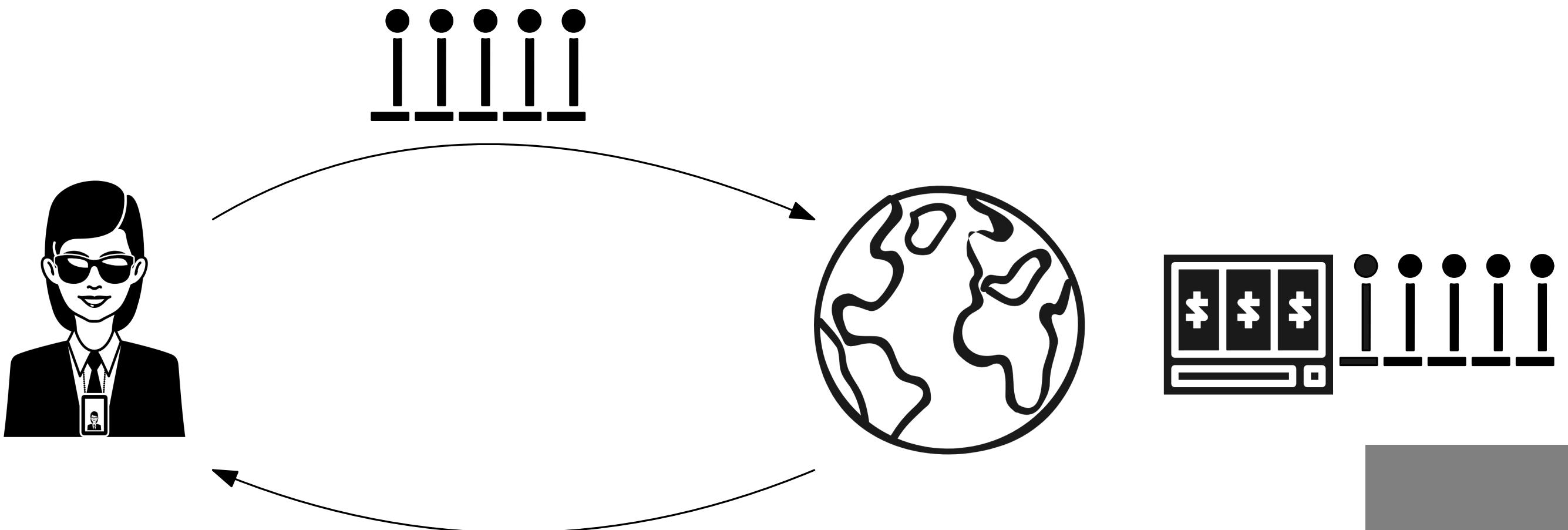
How does supervised/unsupervised learning help reinforcement learning?

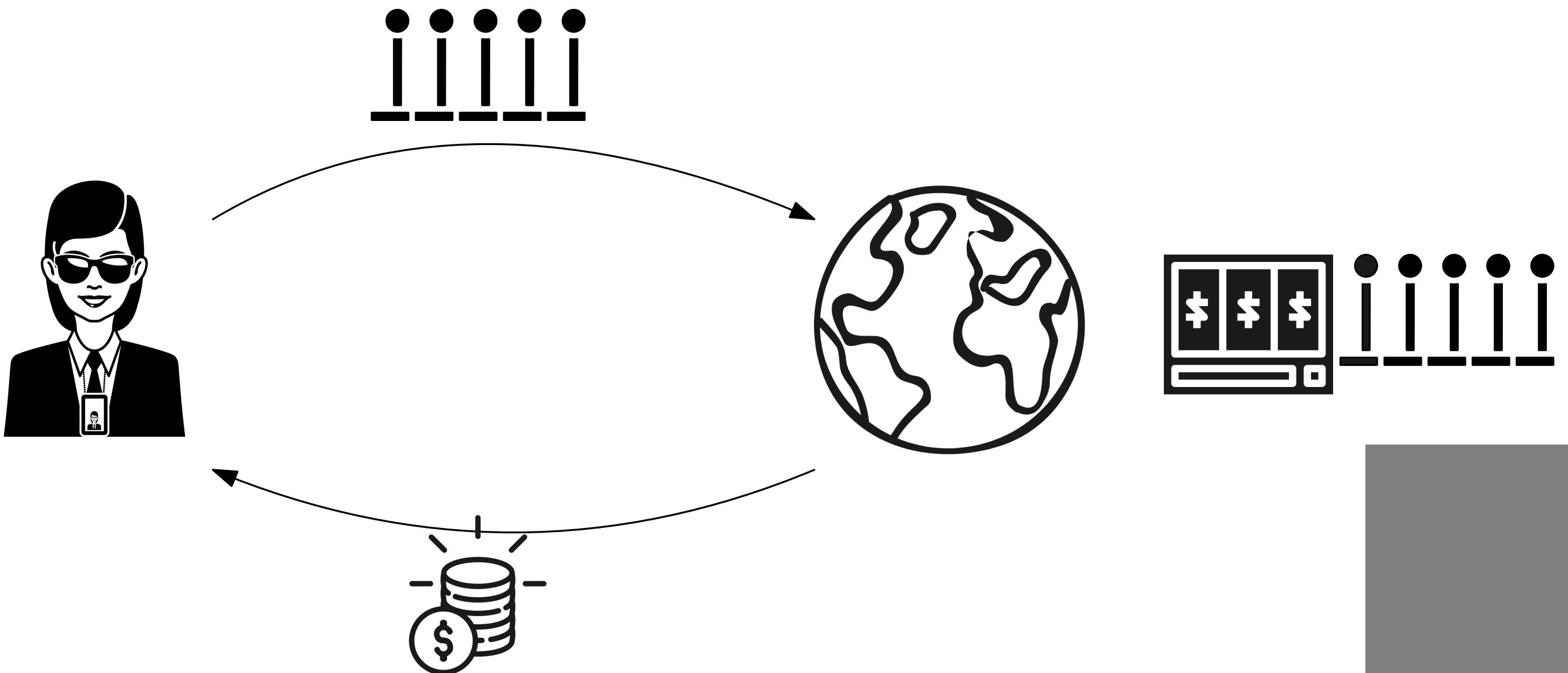
What is the new challenge in RL?

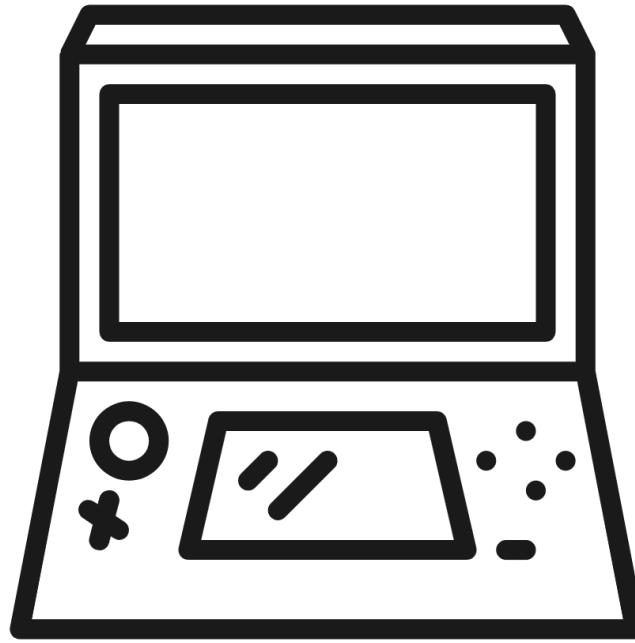


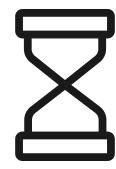




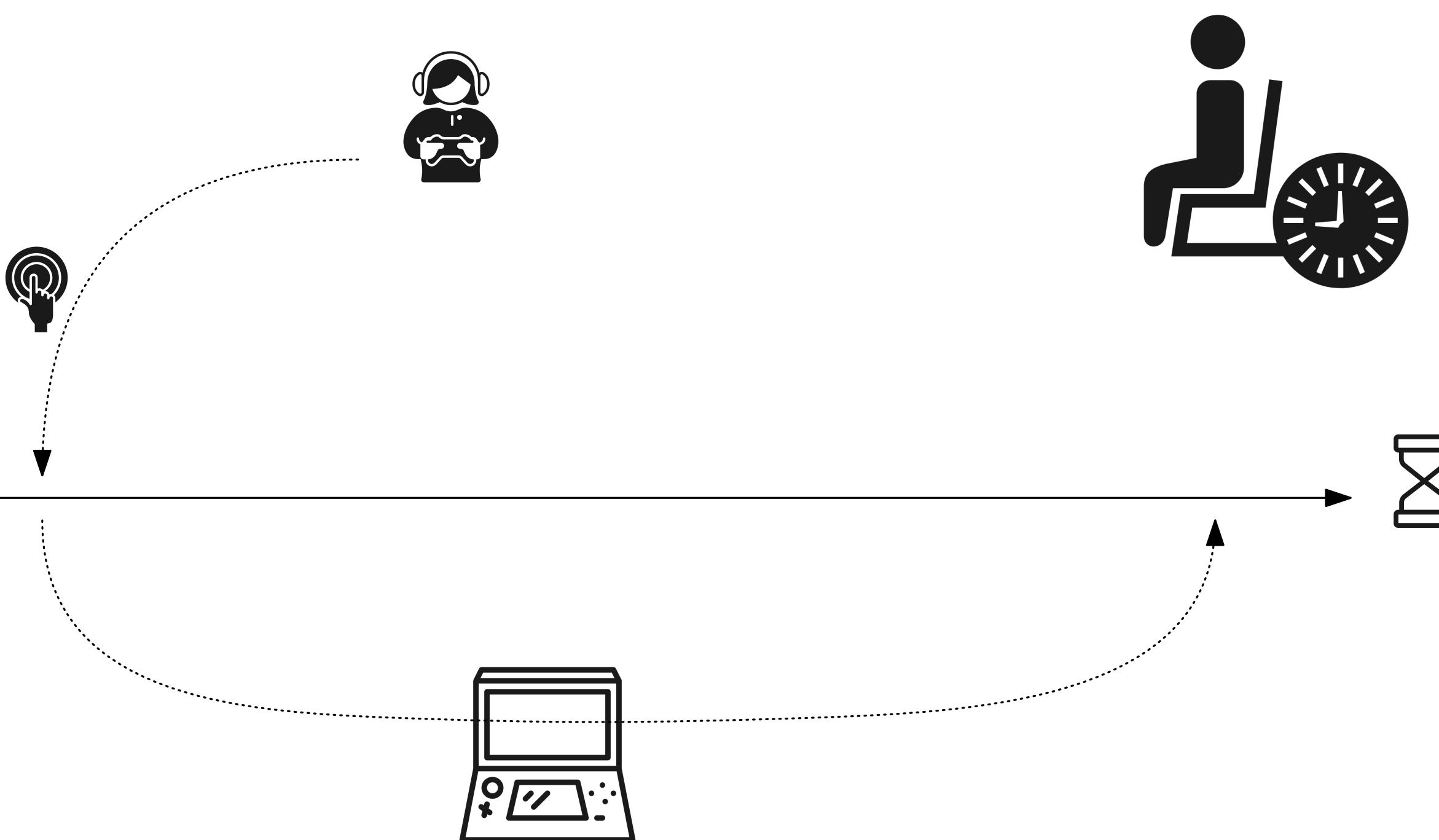


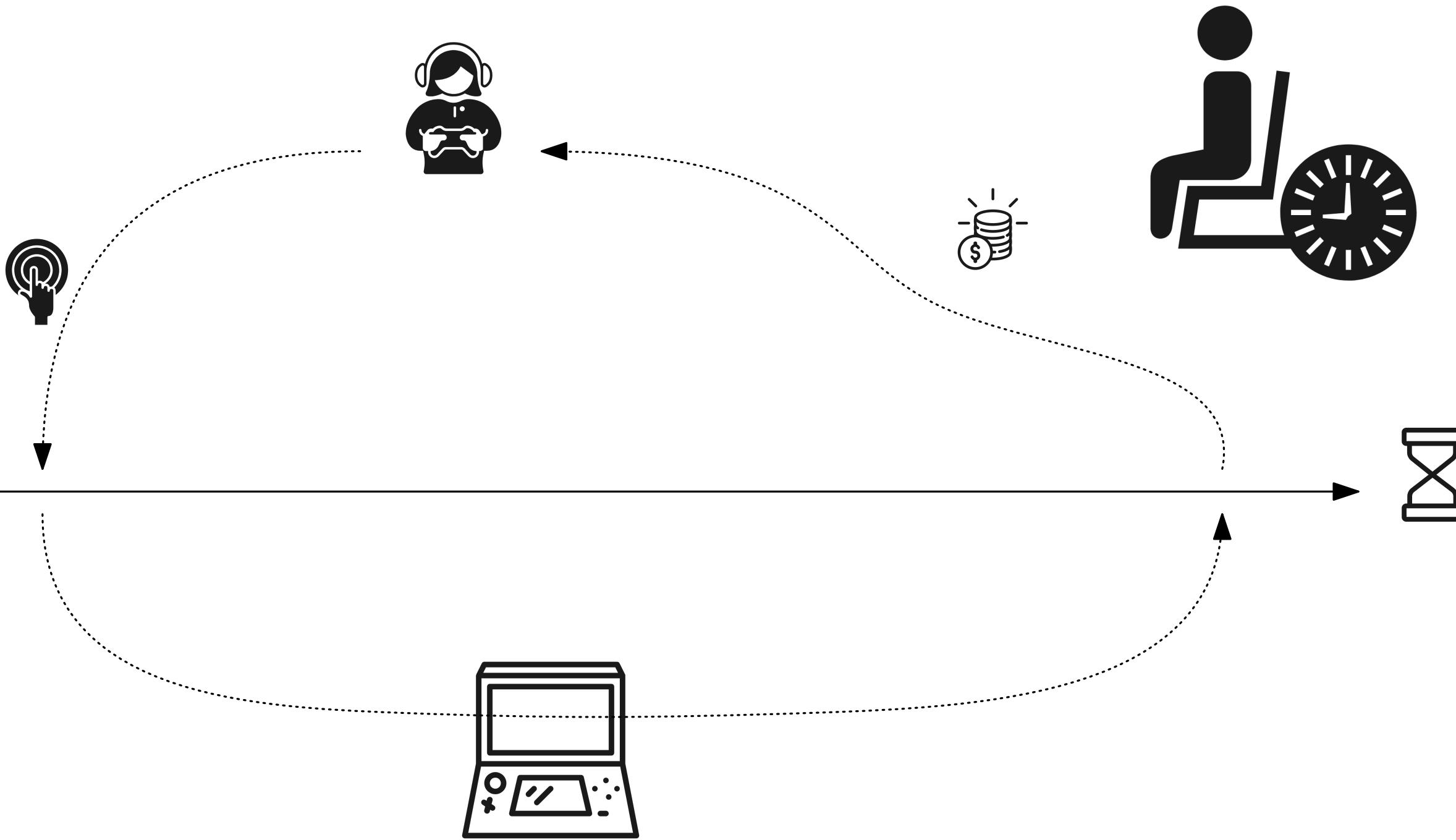


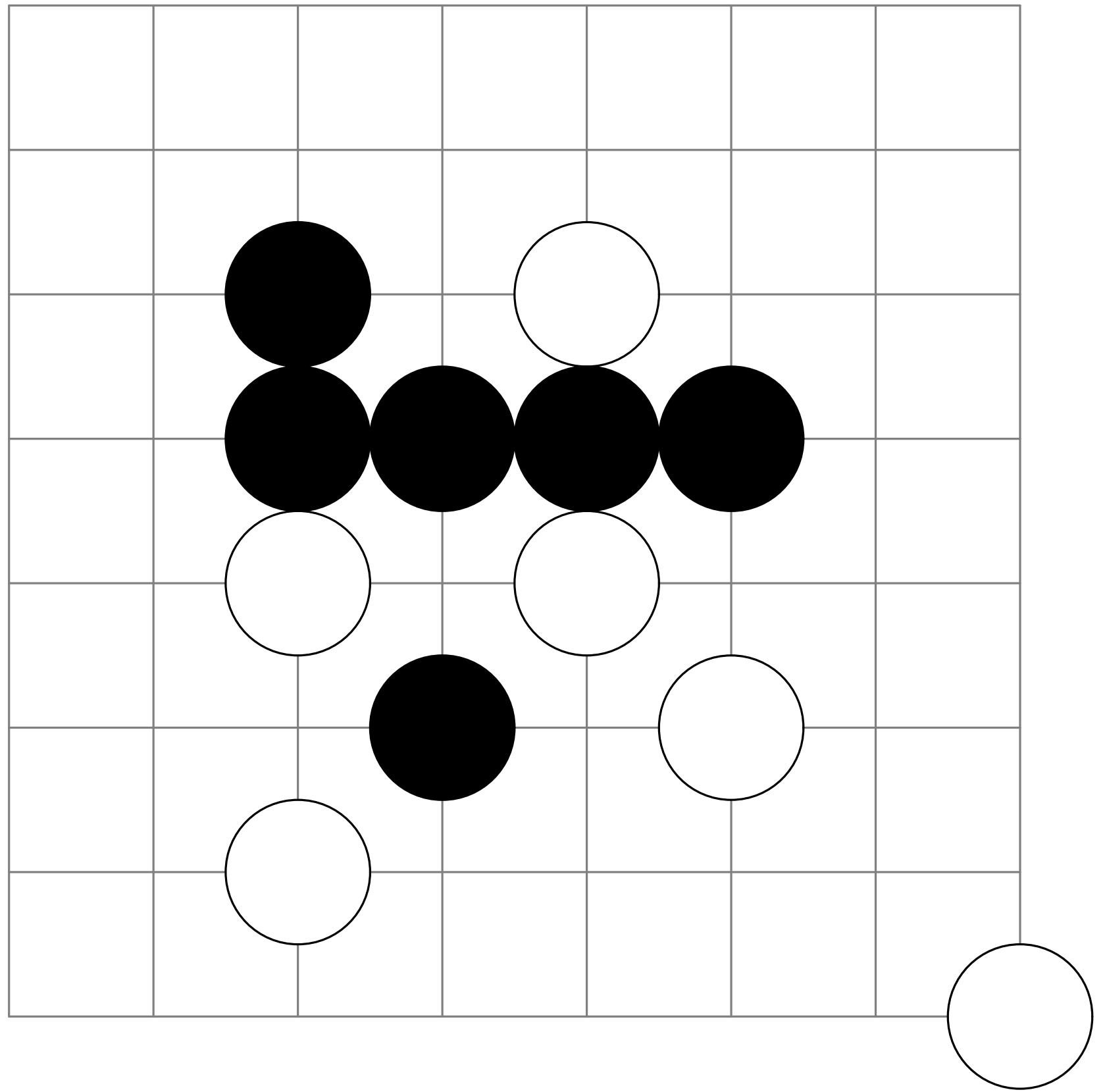














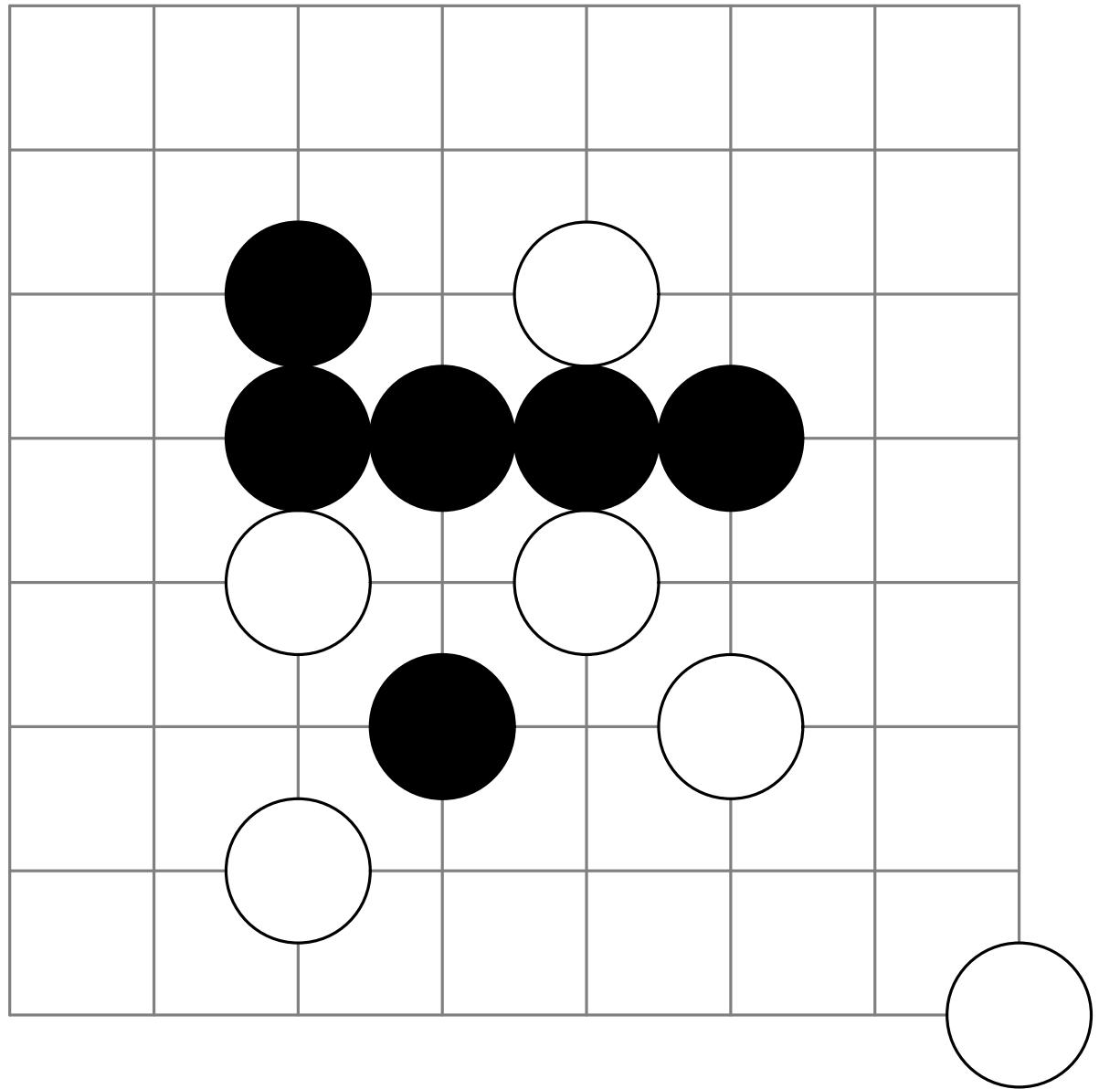
many states  
many actions





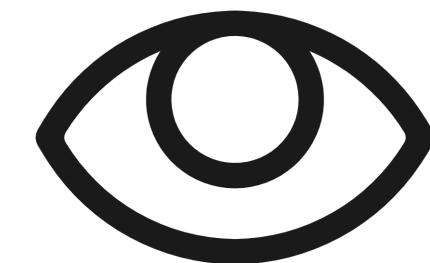
many states  
many actions  
continuous



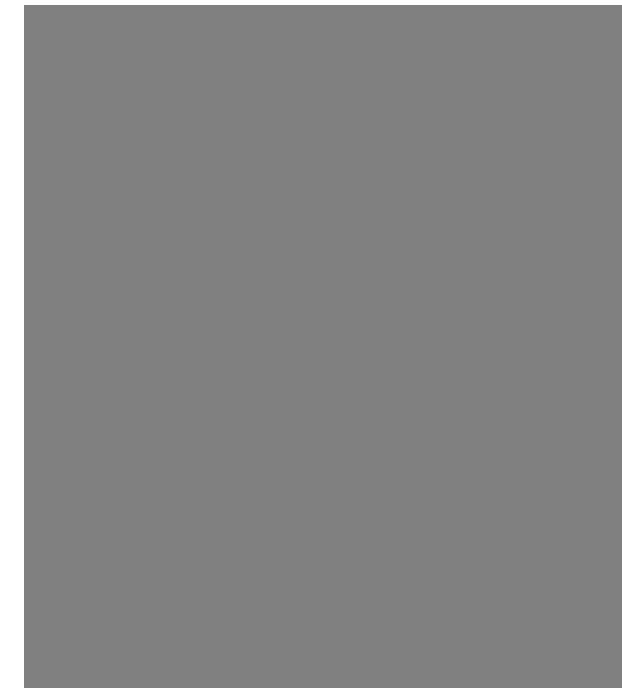


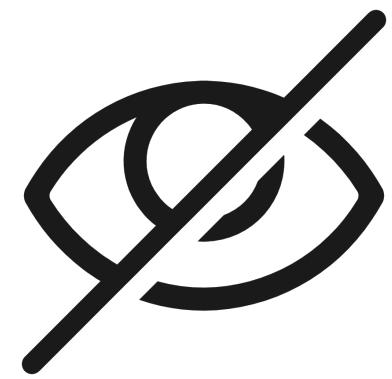
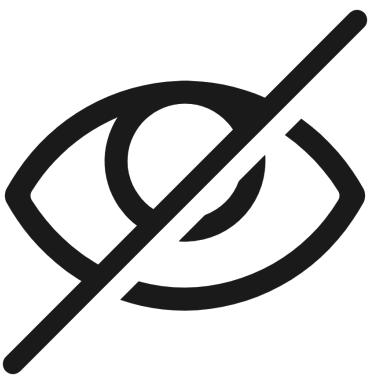
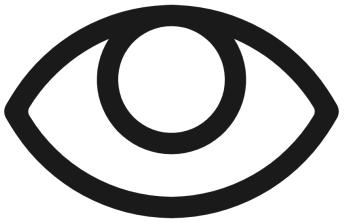
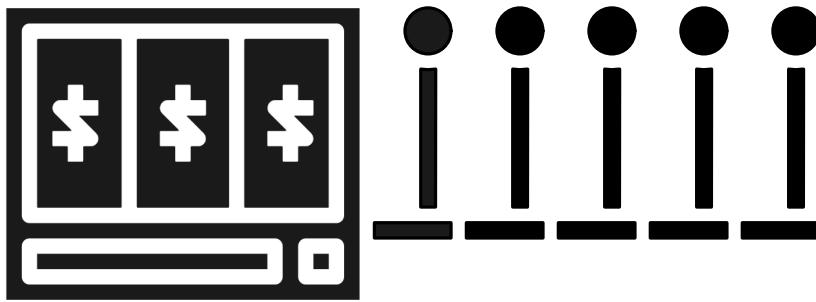
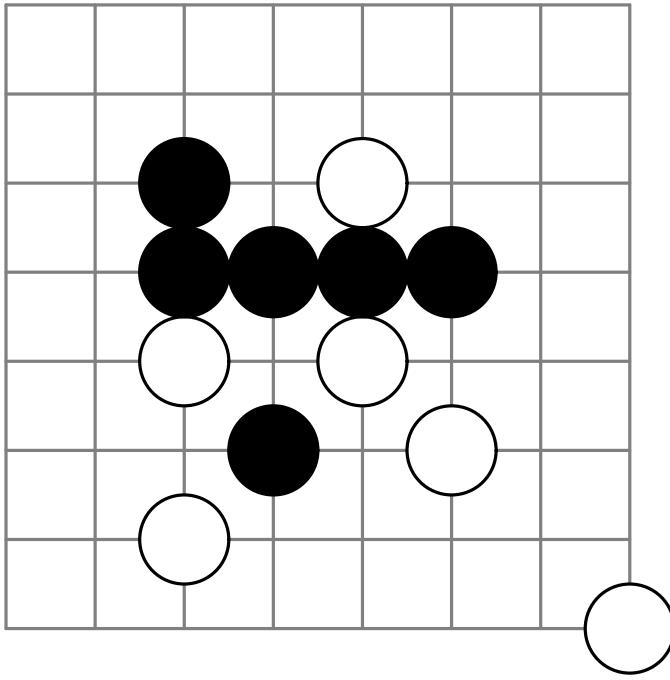


hidden information

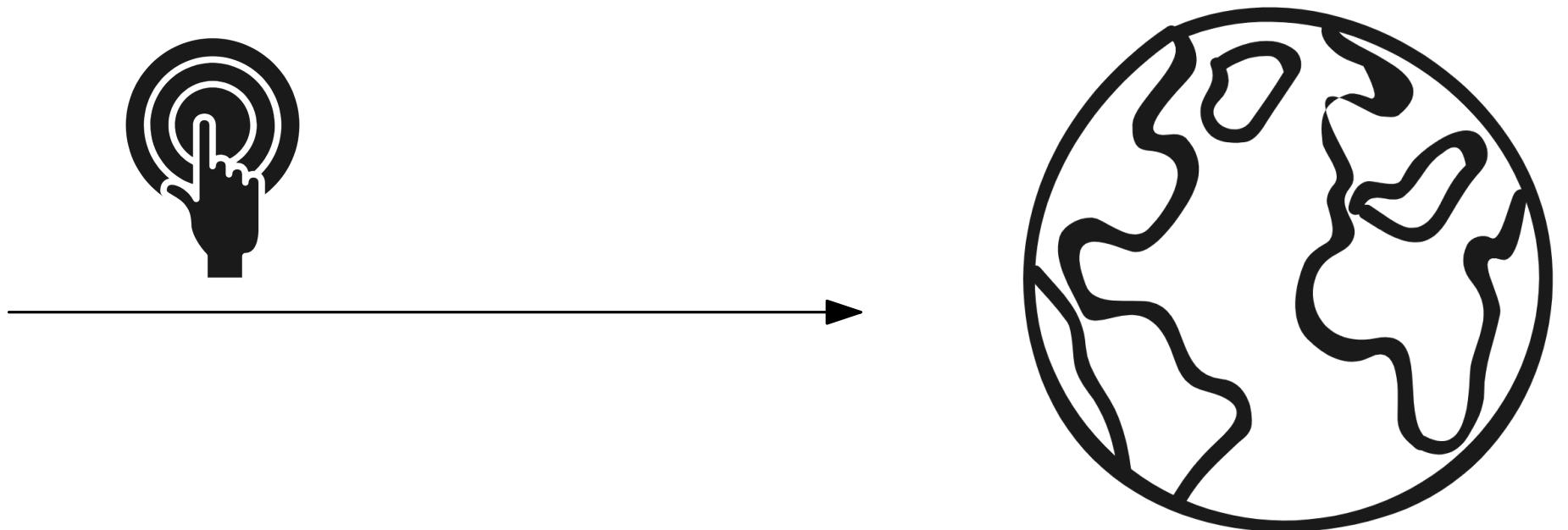


full information



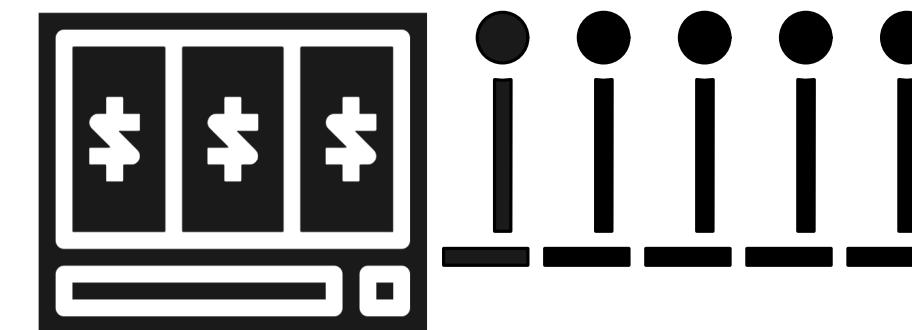
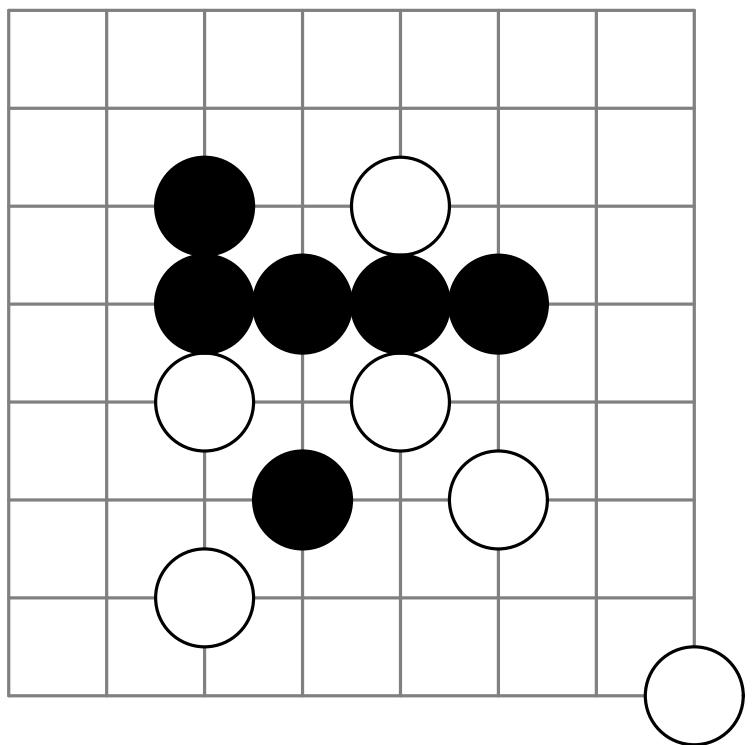




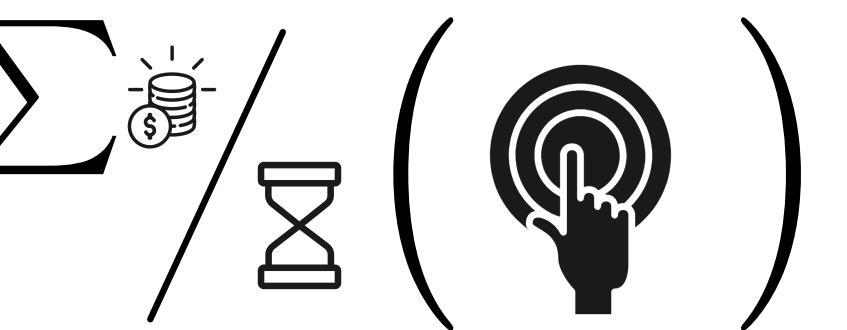








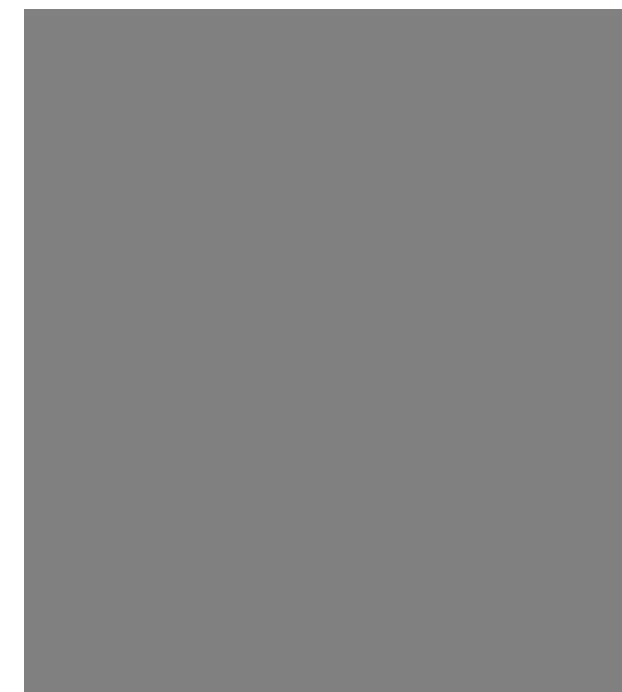
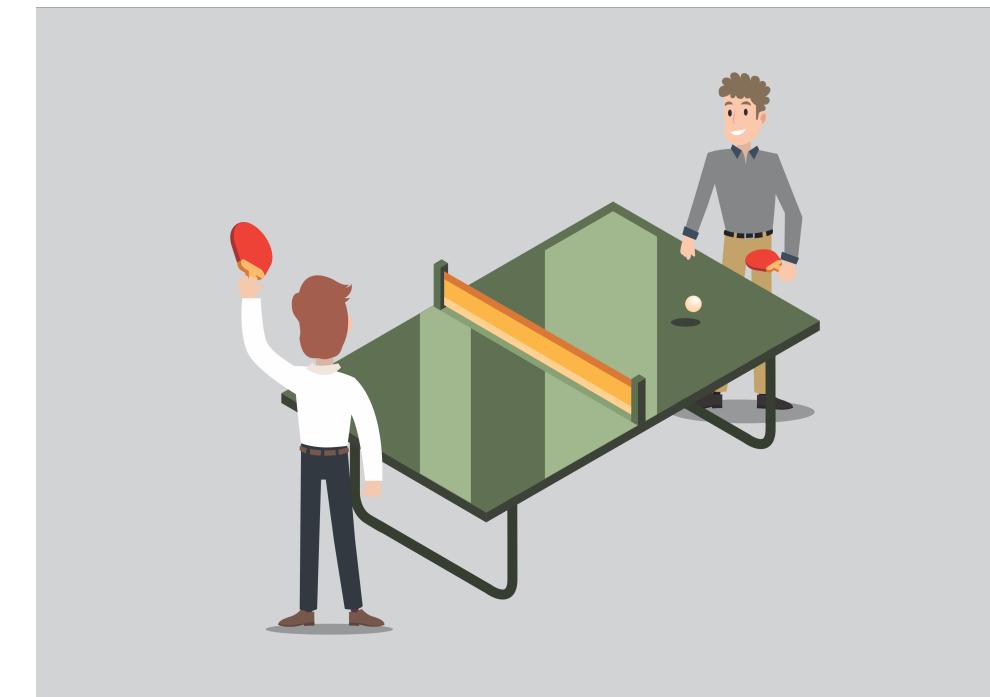
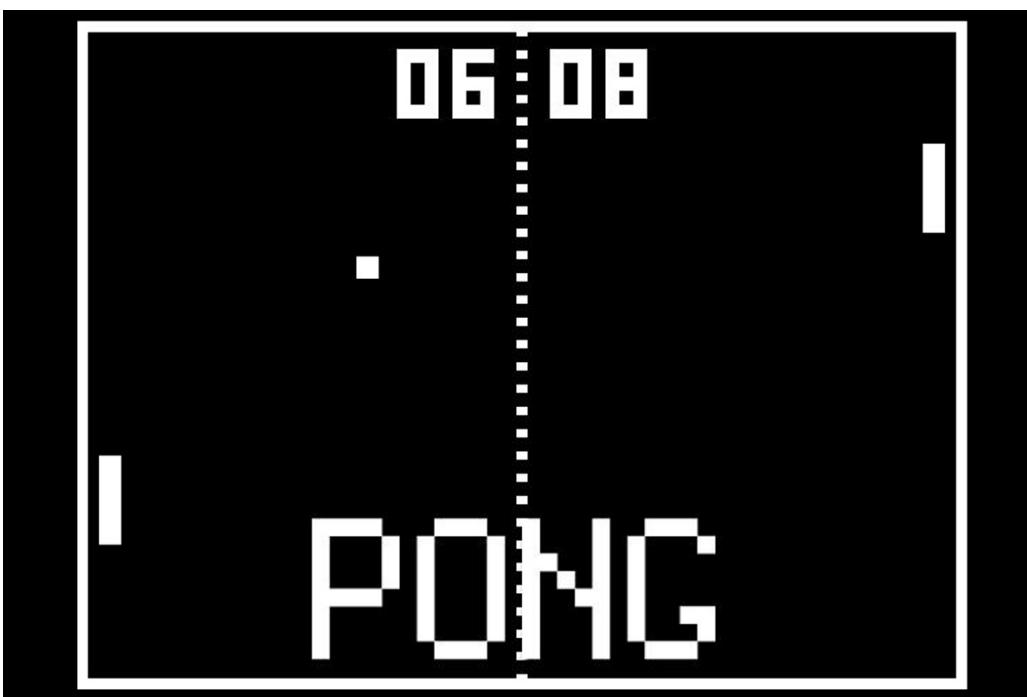
reward 

value 

probabilistic  
deterministic



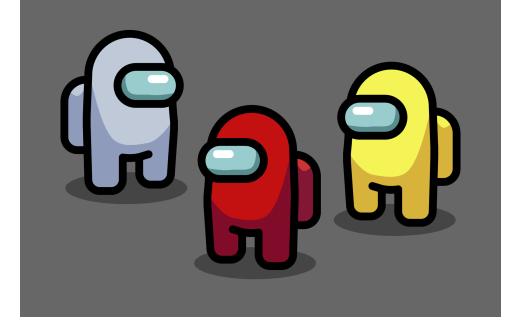
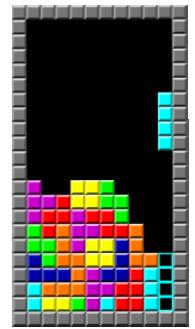
# Complexity





# Assignment 2





full

information

hidden

↔

immediate

rewards

delayed

↔

few

states

infinite

↔

few

actions

infinite

↔

simple

complexity

intricated

↔

deterministic

world

probabilistic

↔

Post on  
Teams

