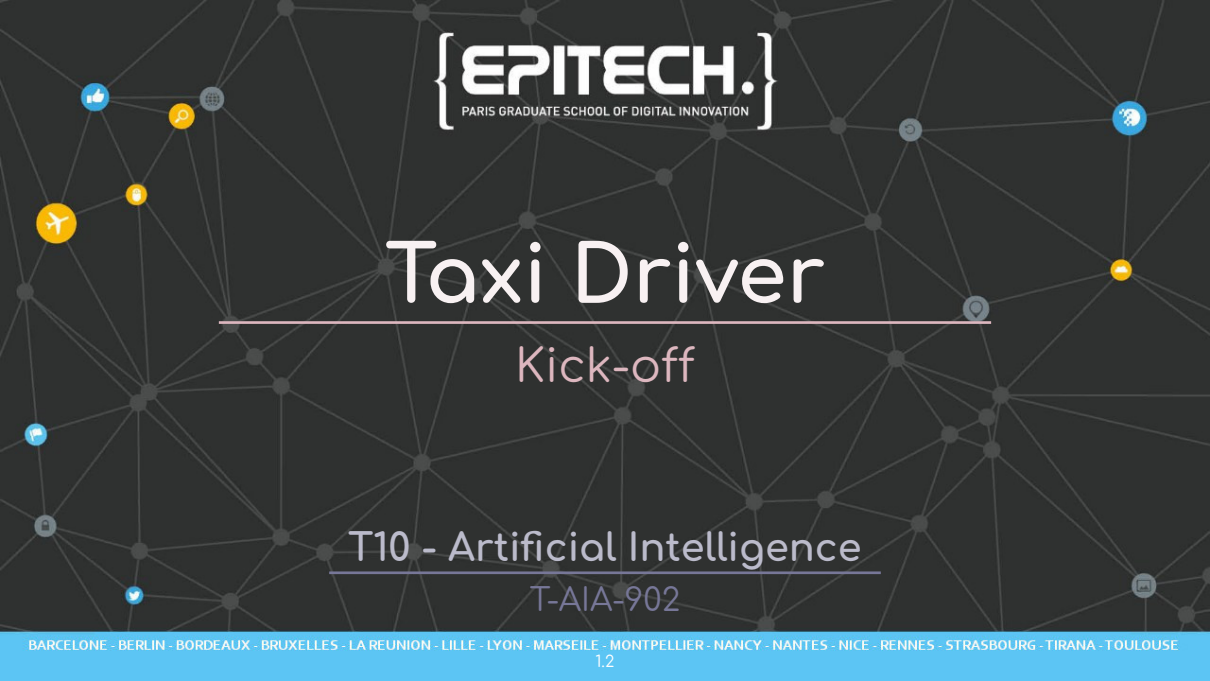


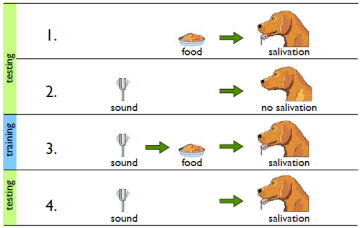
Taxi Driver

Kick-off

T10 - Artificial Intelligence

T-AIA-902

Reinforcement Learning

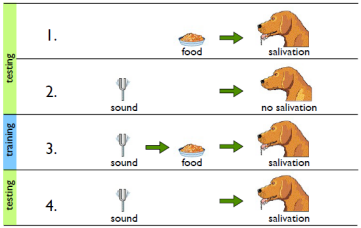


Implement a learning agent

Run an agent

with a specific strategy who will learn to play a game.

Reinforcement Learning



Implement a learning agent
Run an agent
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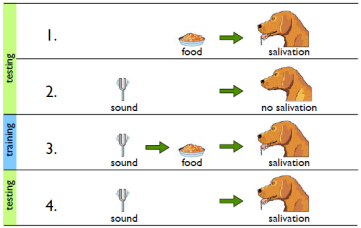
Modelisation
Define state, action and reward …

Reinforcement Learning

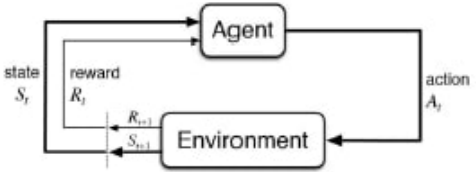


Implement a learning agent
Run an agent
with a specific strategy who will learn to play a game.

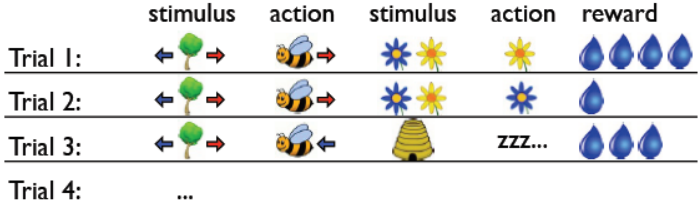
Modelisation
Define state, action and reward …
Many applications: video games, finance

Learning frameworks

model-based vs model-free

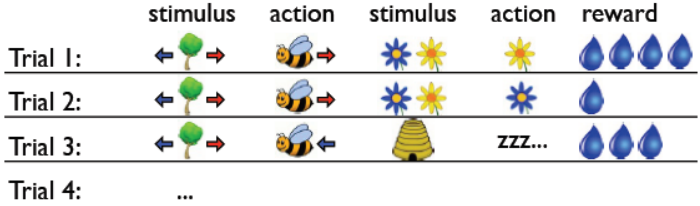


RL algorithm



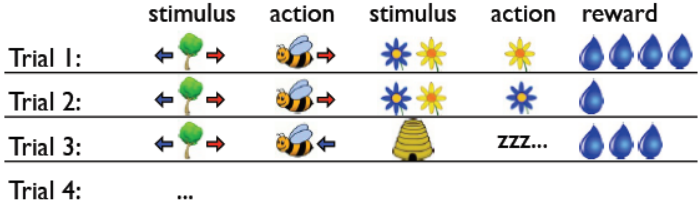
SARSA

RL algorithm



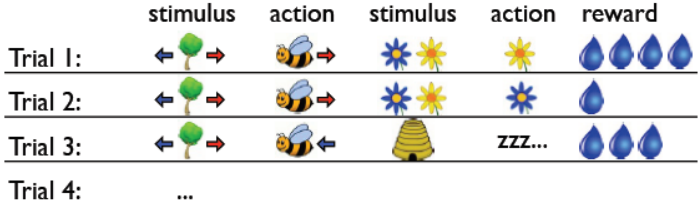
SARSA
Q-learning

RL algorithm



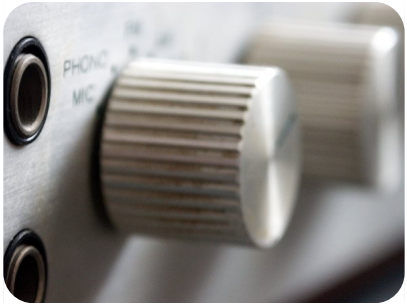
SARSA
Q-learning
Deep Q-learning

RL algorithm



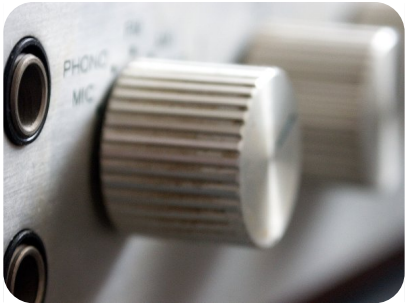
SARSA
Q-learning
Deep Q-learning
Monte-Carlo methods

Optimizing parameters



Tuning parameters to maximize your metrics.

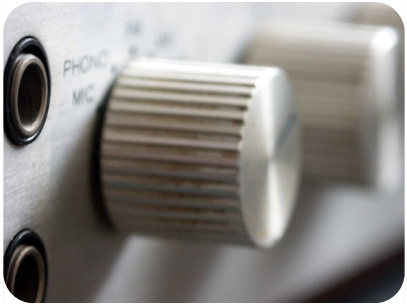
Optimizing parameters



Tuning parameters to maximize your metrics.

Algorithms
parameters: Learning rate, discount factor…

Optimizing parameters



Tuning parameters to maximize your metrics.

Algorithms
parameters: Learning rate, discount factor…

Game parameters: rewards, state, actions…

Taxi Driver

- **Train** an agent to solve a game

Taxi Driver

- **Train** an agent to solve a game
- Use **Reinforcement Learning**
  to solve games *quicker* and with *better* results
  than other non probabilistic methods

Taxi Driver

- **Train** an agent to solve a game
- Use **Reinforcement Learning** to solve games *quicker* and with *better* results than other non probabilistic methods
- Evalute your result and do **parameters optimization** to obtain better performances

Any questions

?