

Renforcement Learning

ECTS : 2

Volume horaire : 21

Description du contenu de l'enseignement :

- 1/ Introduction to reinforcement learning
- 2/ Theoretical formalism: Markov Decision Processes (MDPs), value function (Bellman equation and Hamilton–Jacobi–Bellman equation), etc.
- 3/ Common strategies illustrated with the “multi-armed bandit” example
- 4/ Deep learning strategies: Q-learning, DQN
- 5/ Deep learning strategies: SARSA and variants
- 6/ Deep learning strategies: Actor–Critic and variants
- 7/ Various Python implementations
- 8/ Ethical perspectives, the alignment problem, recent approaches and applications

Compétence à acquérir :

Introduction to reinforcement learning and deep reinforcement learning, with an empirical machine learning perspective: main algorithms, practical implementations (gymnasium)

Bibliographie, lectures recommandées :

<https://turinici.com>

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