Introduction to Reinforcement Learning

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Markov Decision Process

A markov decision process is a tuple:

$$(S, A, \{P_{SA}\}, \gamma, R)$$

where

- S is a set os states.
- A is a set of actions.
- P_{SA} are the state transition probabilites:

$$\sum_{s'} P_{SA}(s') = 1, \quad P_{SA}(s') \geq 0$$

• $\gamma \in [0, 1)$ is a discount factor.

References I



Bickel, P. J., Hammel, E. A., and O'Connell, J. W. (1975). Sex bias in graduate admissions: Data from berkeley: Measuring bias is harder than is usually assumed, and the evidence is sometimes contrary to expectation. *Science*, 187(4175):398–404.



Hardt, M. and Recht, B. (2021).

Patterns, predictions, and actions: A story about machine learning. arXiv preprint arXiv:2102.05242.