# Introduction to Intelligent Systems

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Deterministic

What domain is it?

Indeterministic


# Deterministic

**Planning**

- Planner of pddlsim
- Partial - Order Planner

Deterministic

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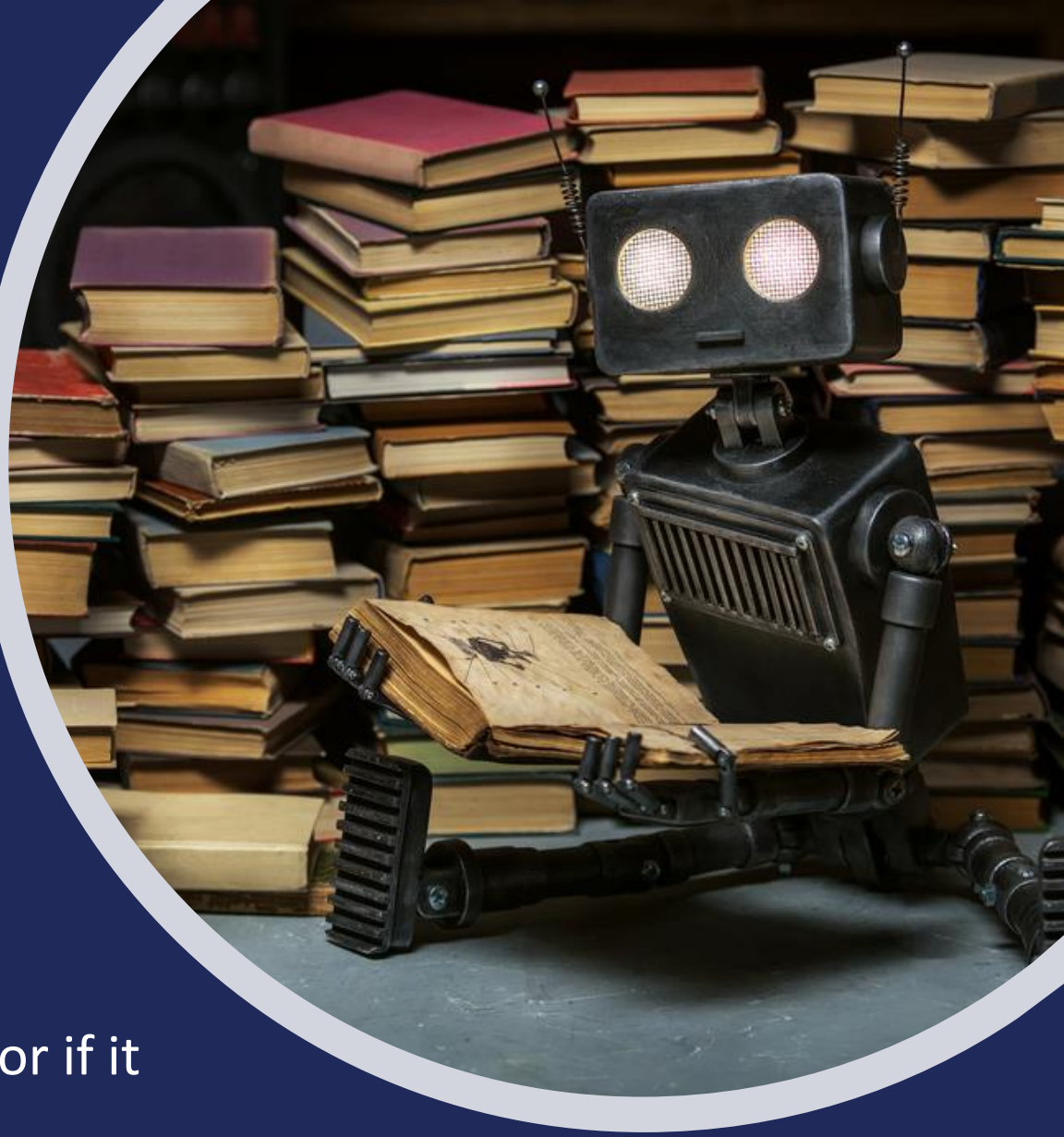
# Indeterministic - Reinforcement Learning

- **Save in a Q-table**
  - Save state as a hash/string
  - Q[state][left_goals][action] = value
- **Execute the best policy**
  - Return the best action from the Q-table
  - Do a random action:
    - If the agent stuck in a loop
    - If the state does not exist in the Q-table

# Indeterministic - Reinforcement Learning

- **Update Q-table**
  - (1 - learning_rate) * Q[prev_state][action] + learning_rate * (reward + discount_factor * next_max)
  - Change the learning and the exploration rate every run
  - Use probabilities
  - Look k steps ahead
  - Reward:
    - Check distance from the goal
    - Punish if the agent already visited that state or if it moves to the previous state
    - Give positive reward if the agent achieve some goal or if it achieve precondition of the goal



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