**Deep Reinforcement Learning**

**Level 1**: Foundations of Reinforcement Learning

* Learn how to define real-word problems as **Markov Decision Process (MDPs),** so that they can be solved with reinforcement learning.
* **SARSA** and **Q-learning,**
* Techniques such as **tile coding** and **coarse coding** to expand the size of the problems that can be solved with traditional reinforcement learning algorithms.

**Level 2**: Value-Based Methods

* Leverage neural networks when solving problems using the **Deep Q-Networks (DQN) algorithm.**
* **Double Q-learning, prioritized experience replay** and **dueling networks.**

**Level 3:** Policy-Based Methods

* Policy-based and actor-critic methods
  + **Proximal Policy Optimization (PPO)**
  + **Advantage Actor-Critic (A2C)**
  + **Deep Deterministic Policy Gradients (DDPG)**
* Optimization techniques such as **evolution strategies** and **hill climbing.**

**Level** **4:** Multi-Agent Reinforcement Learning

* **Monte Carlo Tree Search (MCTS)**……..(behind DeepMind’s AlphaZero)

Some Links:

Unity Machine Learning:

* <https://blogs.unity3d.com/2017/09/19/introducing-unity-machine-learning-agents/>

Nice Book:

* https://drive.google.com/open?id=1SSL\_cHIZXSpzP5F16D43kz4yic1eyjuG