Overview of Multiagent Reinforcement Learning in Game Playing

Buciu Ștefan

**Description:**

Reinforcement Learning has been successfully applied to single-agent strategy games such as Chess and Go, achieving state-of-the-art performance. Conquering that area of AI game playing, recent works are exploring the potential of RL in multi-agent scenarios. Many real-world applications require artificial agents to coordinate with other agents in complex environments, thus multi-agent AI game playing is a stepping stone in achieving the goal of general intelligence.

**Time slot:**

Week 10, if possible, otherwise Week 11.

**References:**

* LANCTOT, Marc, et al. A unified game-theoretic approach to multiagent reinforcement learning. *Advances in neural information processing systems*, 2017, 30.
* VINYALS, Oriol, et al. Grandmaster level in StarCraft II using multi-agent reinforcement learning. *Nature*, 2019, 575.7782: 350-354.
* RAILEANU, Roberta, et al. Modeling others using oneself in multi-agent reinforcement learning. In: *International conference on machine learning*. PMLR, 2018. p. 4257-4266.
* GUPTA, Jayesh K.; EGOROV, Maxim; KOCHENDERFER, Mykel. Cooperative multi-agent control using deep reinforcement learning. In: *International conference on autonomous agents and multiagent systems*. Springer, Cham, 2017. p. 66-83.
* LU, Yunlong; YAN, Kai. Algorithms in multi-agent systems: A holistic perspective from reinforcement learning and game theory. *arXiv preprint arXiv:2001.06487*, 2020.