1. The article is headlined “QMIX: Monotonic Value Function Factorization for Deep Multi-Agent Reinforcement Learning”

2. The article is written by students from University of Oxford. It was published in the journal “Artificial Intelligence” in 2018.

3. The main idea of the article is to create multi-agent reinforcement learning method that is able to learn agents together while acting in a decentralized way. The authors present QMIX value-based algorithm that consists a complex monotonic non-linear combination of functions.

4. The authors start by telling that reinforcement learning is the important tool for deciding cooperative multi-agent problems. By using this, it is possible to learn agents in a centralized way. The authors say that it helps to find out strategies where agents coordinate together to achieve a goal. According to the text they are using decomposition of Q action-state value function for each agent that allows to act independently, it’s why the algorithm is named as Q mix. Q function is able to estimate state of the environment and usually is approximated by deep neural network. Also the authors write that independent acting decides behavior challenges because an agent chooses how to interact with environment and other agents itself, hence it will be able to act even the agent is left alone. The article describes mathematical base of factorization of Q functions. There described that factorization is possible due to monotonic properties of factorized functions and it doesn’t contradict conditions of multi-agent reinforcement learning.

5. I find the article important because it contains state-of-the-art algorithm is able to learn independent agents that act cooperatively.