M2DQN algorithm:

The M2DQN algorithm is a robust method for accelerating the Deep Q-learning Network (DQN) algorithm. [It is designed to improve data efficiency, which is one of the most important problems in the research of reinforcement learning 1](https://arxiv.org/pdf/2209.07809). The proposed method uses the Max-Mean loss in Deep Q-Network (M2DQN) and samples several batches from the experience replay to update the parameters such that the maximum TD-error of these batches is minimized. [The proposed method can be combined with most of the existing techniques of the DQN algorithm by replacing the loss function 1](https://arxiv.org/pdf/2209.07809).

The M2DQN algorithm differs from the previous DQN algorithm in that it uses the Max-Mean loss in Deep Q-Network (M2DQN) instead of sampling one batch of experiences in the training step. [The proposed method samples several batches from the experience replay and updates the parameters such that the maximum TD-error of these batches is minimized 1](https://arxiv.org/pdf/2209.07809).

Convergent and Efficient Deep Q Network Algorithm:

This algorithm proposes a convergent and efficient DQN algorithm that guarantees convergence and improves the performance of the original DQN algorithm. [The proposed algorithm is based on the idea of using a dynamic update of the target value network parameters 1](https://arxiv.org/abs/2106.15419v1). [The main difference from the regular DQN algorithm is that it is guaranteed to converge and can work with large discount factors (0.9998) 2](https://arxiv.org/abs/2106.15419).

Rainbow: Combining Improvements in Deep Reinforcement Learning:

This algorithm proposes a new algorithm called Rainbow, which combines several improvements to the DQN algorithm. [The proposed algorithm uses a combination of Double Q-learning, Prioritized Experience Replay, Dueling Network Architectures, and Noisy Networks 3](https://arxiv.org/abs/1710.02298). [The main difference from the regular DQN algorithm is that it uses a combination of several improvements to the DQN algorithm, which provides state-of-the-art performance on the Atari 2600 benchmark, both in terms of data efficiency and final performance 3](https://arxiv.org/abs/1710.02298).

DQN Algorithm Based on Target Value Network Parameter Dynamic Update:

This algorithm proposes a new DQN algorithm that is based on the idea of using a dynamic update of the target value network parameters. [The proposed algorithm improves the convergence speed and stability of the original DQN algorithm 4](https://ieeexplore.ieee.org/document/9544323/). [The main difference from the regular DQN algorithm is that it uses a dynamic update of the target value network parameters to speed up the algorithm’s convergence speed and improve its stability 4](https://ieeexplore.ieee.org/document/9544323/).