Week 4

1. Keep reading the book of Reinforcement Learning: An Introduction by Sutton.
2. Finish the homework of Machine Learning class.
3. Because I will do some research on Games and multi-objective, so in this week, I learn some basic and commonly used algorithms in the related field. I have learned MCTS, MGDA, WGAN. As we know that like AlphaGo and many chess games are mainly using MCTS algorithm, I am trying to write the code to reproduce.
4. Because of the limited time, I have only read several papers roughly "Multi-Task Learning as Multi-Objective Optimization", "Training agent for first-person shooter game with actor-critic curriculum learning".

Training agent for first-person shooter game with actor-critic curriculum learning

[1] This is the algorithm that won the first prize in the competition of Doom in 2017. They use the reinforcement learning of A3C method. This paper did not have its originality, they just used the existing methods to solve a problem in the game and they achieved excellent results in the competition through parameters and network optimization.

Multi-Task Learning as Multi-Objective Optimization

[2] This is a paper from NIPS 2018, the main idea is to regard the optimization problem of multi-task learning as a multi-objective optimization problem, then use the multi-objective optimization method to solve this problem. This paper worth my intensively reading next week.

These papers can provide me some inspiration.

References

[1] Yuxin Wu and Yuandong Tian. Training agent for first-person shooter game with actor-critic curriculum learning. *ICLR*, 2016.

[2] Ozan Sener and Vladlen Koltun. Multi-task learning as multi-objective optimization. In *Advances in Neural Information Processing Systems*, pages 527–538, 2018.