HW B
TIF360 Advanced machine learning with neural nets

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Solution proposal

Problem 1

a)

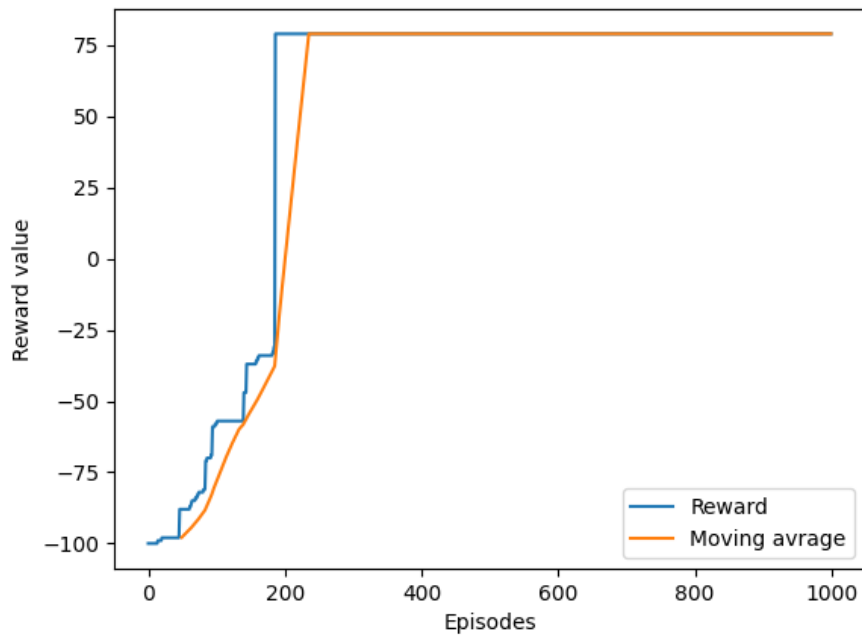When a maximum is reached we will only do that move.

Figure 1: Task 1a)

b)

Reaches the same steady state but with a bit more uncertainty and a lot more variance since we have a chance of making a random action. This causes the algorithm to explore more.
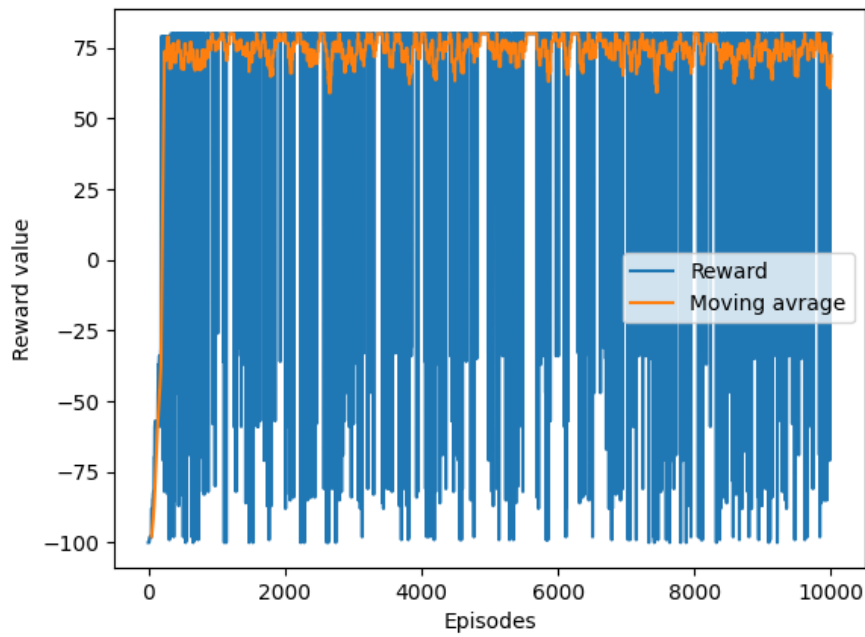
Figure 2: Task 1b)

c)

Due to the large state space and the non-deterministic nature of the tiles, the system is very noisy and requires extensive training to produce satisfactory results. Higher scores may be achieved by receiving tiles in a favorable order. On average, the strategy is likely to be worse as the system has not yet acquired sufficient knowledge.
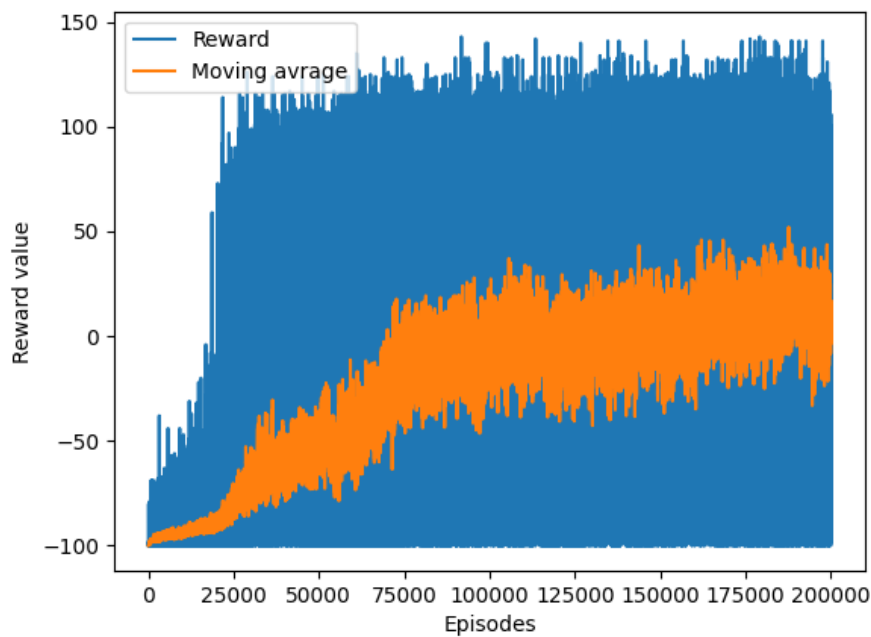

Figure 3: Using a window of 50 for moving average seems to be very noisy.

d

Using a state space to represent an 8x8 grid requires a significant amount of data, making it an inefficient method. A more effective approach would be to use a deep Q-network.

Problem 2

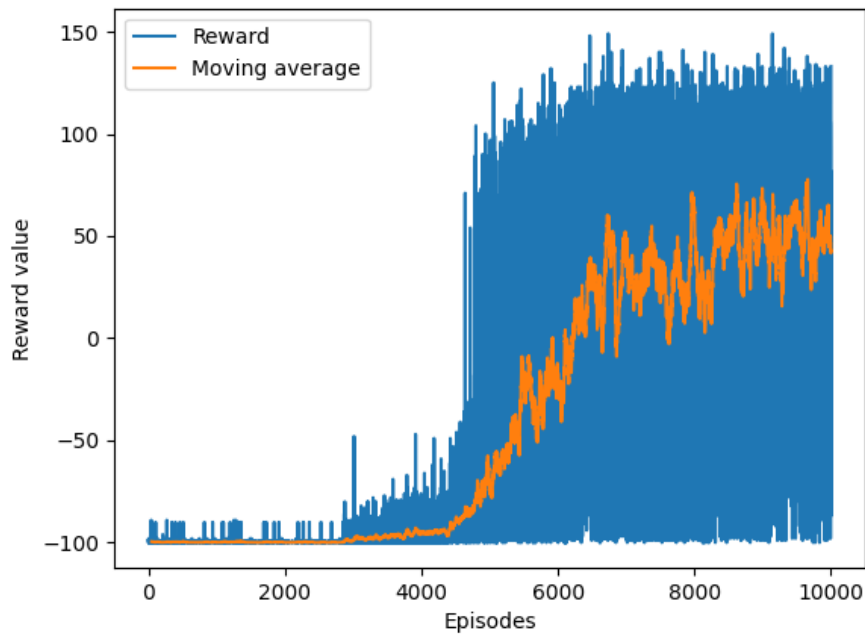**a)**

Implemented a network to solve the task. Moving average around 50 at the end.

Figure 4: Window size is 50.