

COMS30017 Computational Neuroscience

Week 7 Problem sheet

Video 1

- The weights are initialized at $w_1(0) = 0$, $w_2(0) = 0$, with a learning rate of 0.1. Compute the final weights, $w_1(2)$ and $w_2(2)$ if we have $x(1)=(1, 0)$, $y^*(1)=2$, followed by $x(2)=(1, 1)$, $y^*(2)=-2$. (The (0), (1) and (2) are time indices).

Video 2

- Describe the main cerebellar pathway (cells + fibres), including interesting features of each part of the pathway.

Video 3

- For each conditioning paradigm, draw a sketch a plot showing how the weights over time.

Video 4

- Describe the differences between Rescorla-Wagner and TD learning.