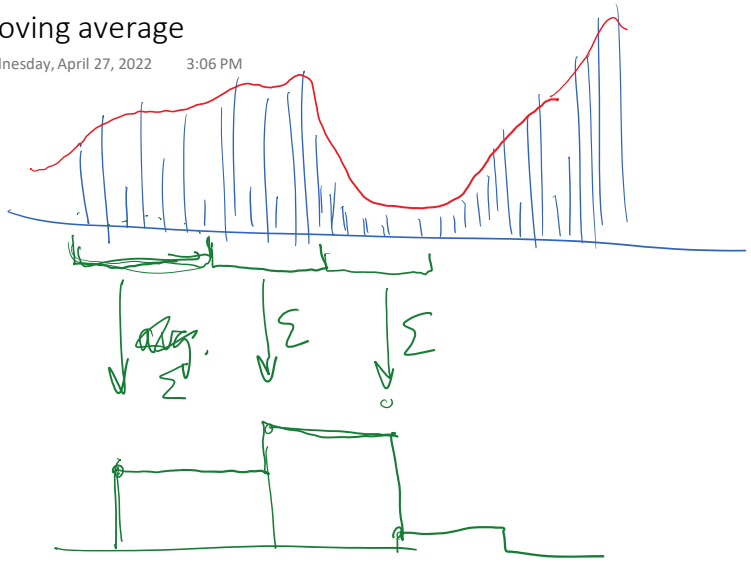
Moving average

Wednesday, April 27, 2022 3:06 PM

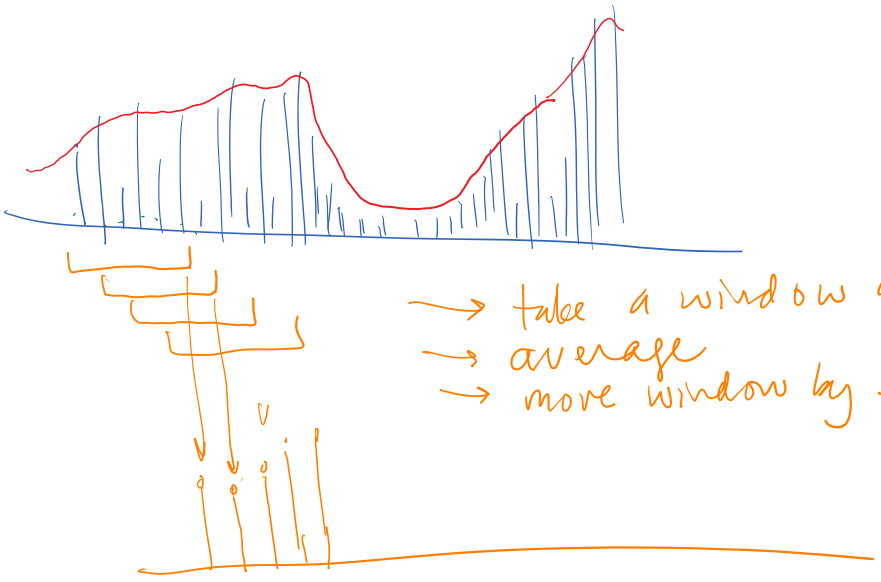


looking for overall trend over time, ignoring the variability that represents noise.

→ eg. how is WS doing w/ covid cases?

drops & spikes due to changes in testing & reporting.

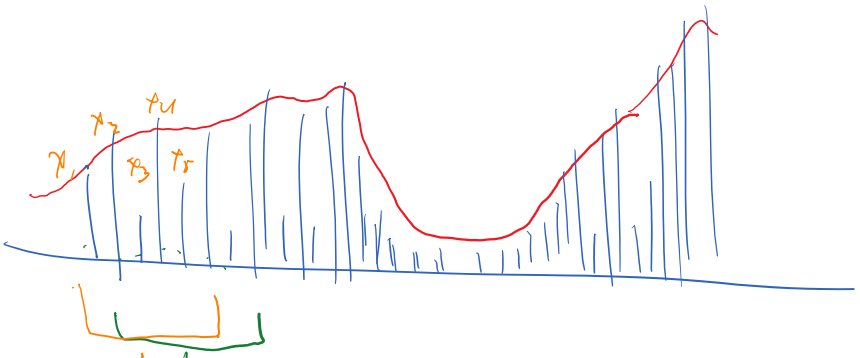
testing



→ take a window of time
→ average
→ move window by 1 sample.

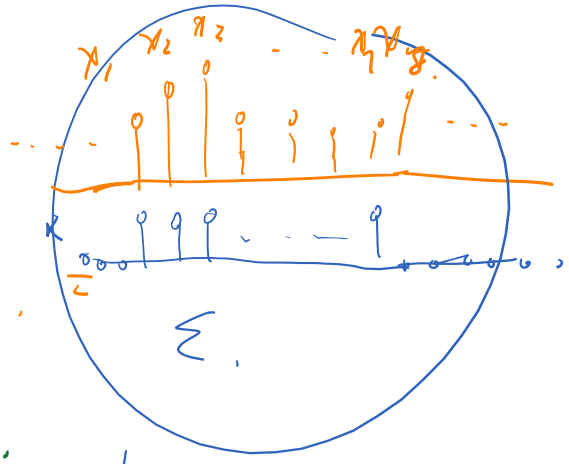
Implementing a moving average filter

Wednesday, April 27, 2022 3:33 PM



$= (x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7) \frac{1}{7}$.

$= (x_2 + x_3 + \dots - x_8) \frac{1}{7}$.



Convolution.

$y[n] = x[n] * w[n]$ = moving average over L samples.

this is $h[n]$ for M.A. filter.

It's an FIR filter.

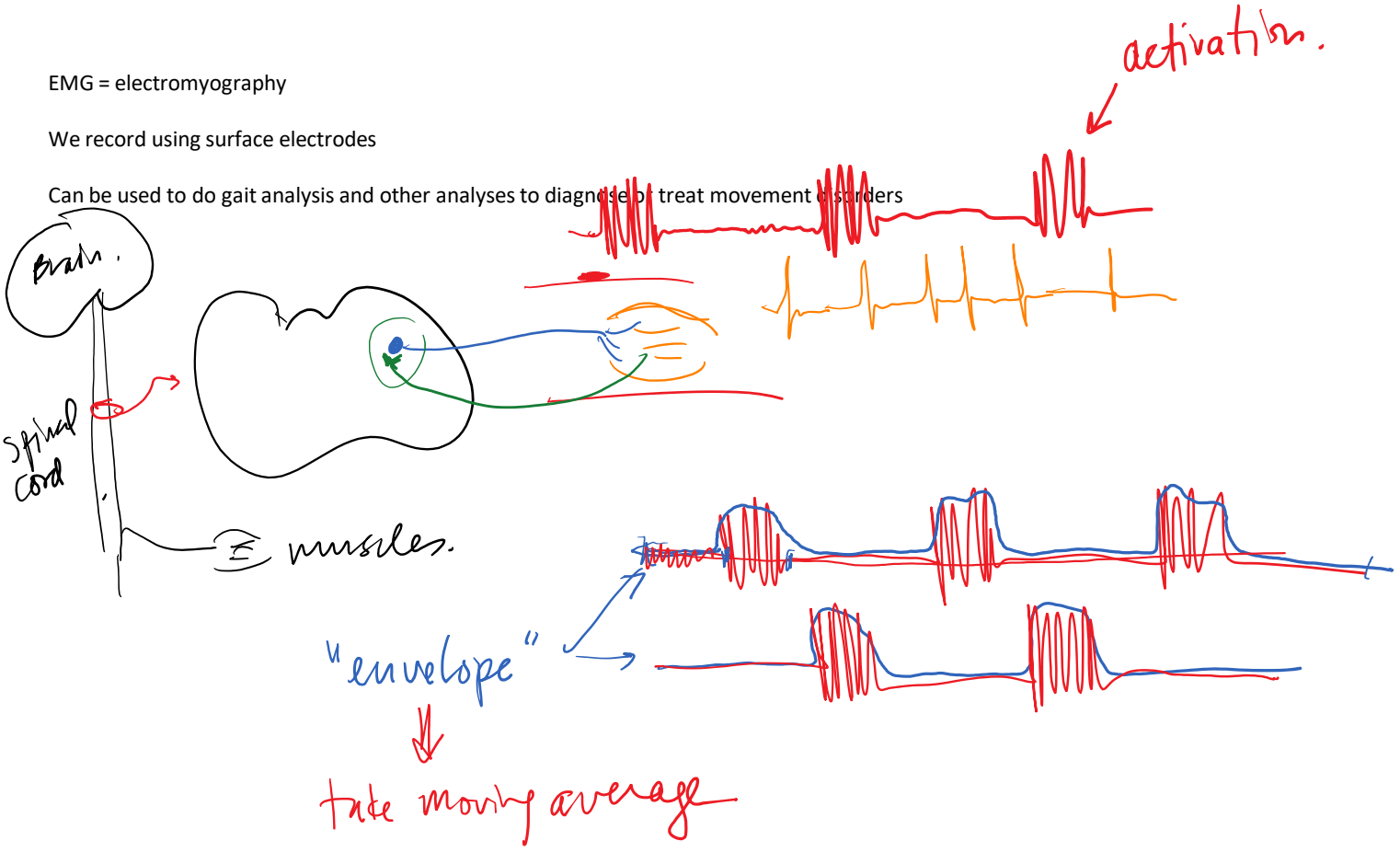
EMG envelope

Wednesday, April 27, 2022 3:42 PM

EMG = electromyography

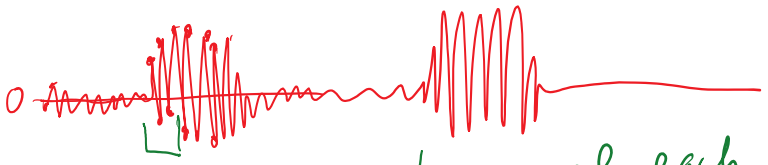
We record using surface electrodes

Can be used to do gait analysis and other analyses to diagnose or treat movement disorders



Implementing moving average for EMG envelope

Wednesday, April 27, 2022 4:09 PM



④ & ⑤ would cancel each other out.

⇓ to get moving avg. of energy in EMG.

① Rectify the EMG signal,

② Convolve w/