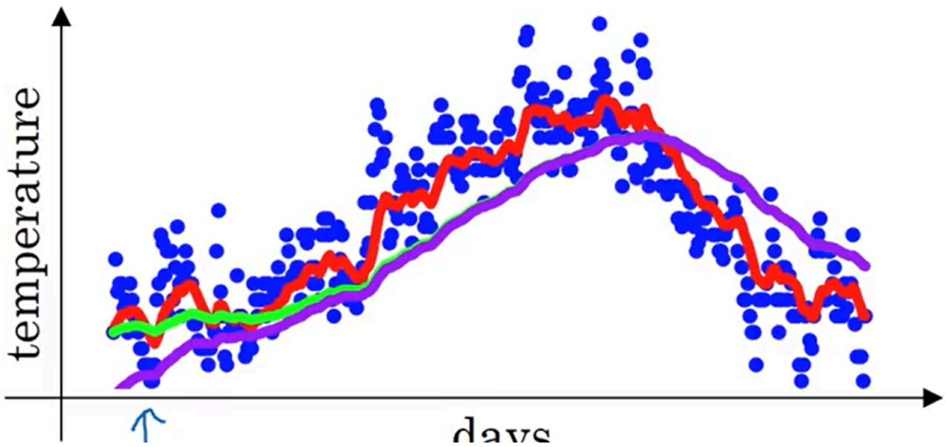
Bias correction in exponentially weighted averages

beta = 0.9 → red line

beta = 0.98 → green line (actually you don't get the green line, you get the purple line)

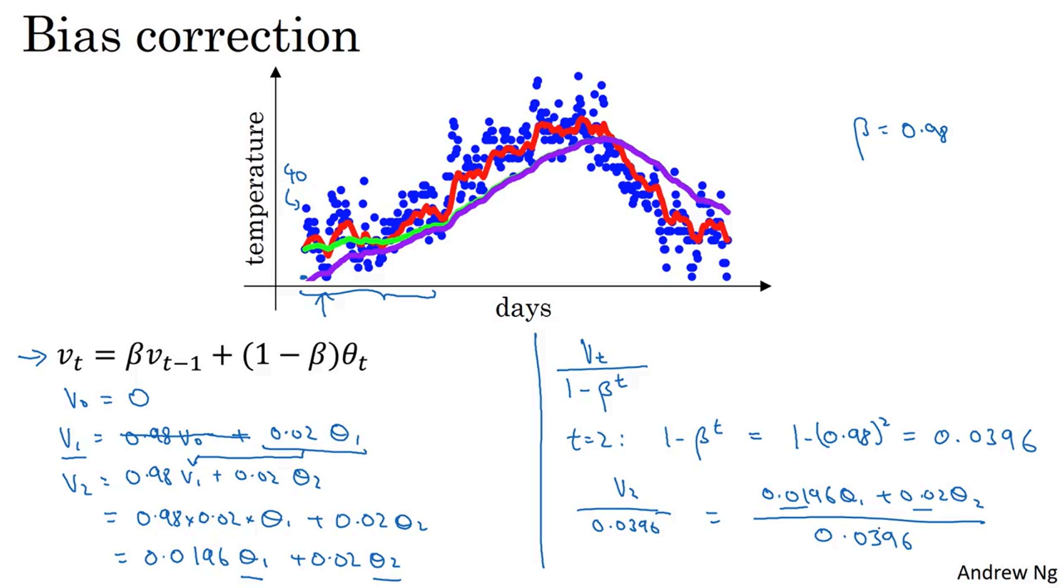
The purple line starts off low.



Initial EWA is bad, therefore use the following formula:

(essentially do the same EWA as before, but just divide each of those v_t's by (1-beta^t))

And also note that 1-beta^t is the sum of the coefficients of the summands, so it is a weighted average—it's at the scale of new temperatures.



Now, as t becomes large 1-beta^t will be 1 meaning bias correction is switched off.