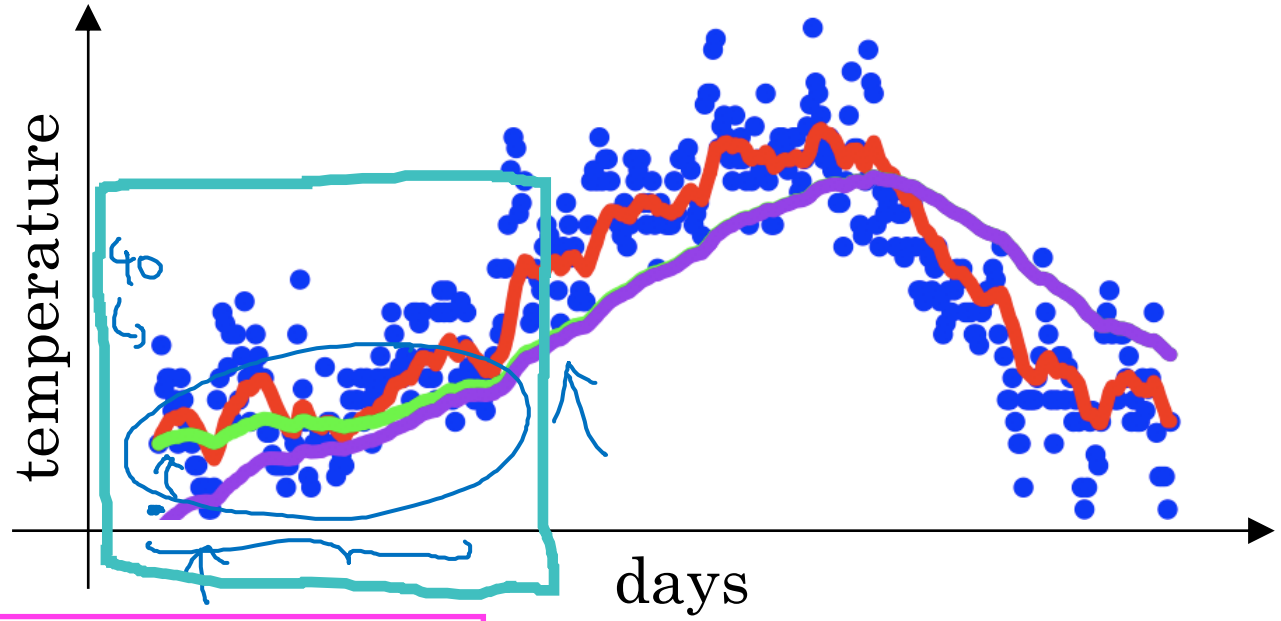
deeplearning.ai

Optimization Algorithms

Bias correction in exponentially weighted average

Bias correction



$\beta = 0.98$

$$v_t = \beta v_{t-1} + (1-\beta)\theta_t$$

$v_0 = 0$

$v_1 = 0.98 v_0 + 0.02\theta_1$

$v_2 = 0.98 v_1 + 0.02\theta_2$

$= 0.98 \times 0.02 \times \theta_1 + 0.02\theta_2$

$= 0.0196\theta_1 + 0.02\theta_2$

$$\frac{v_t}{1-\beta^t}$$

$t=2: \quad 1-\beta^t = 1-(0.98)^2 = 0.0396$

$$\frac{v_2}{0.0396} = \frac{0.0196\theta_1 + 0.02\theta_2}{0.0396}$$

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