



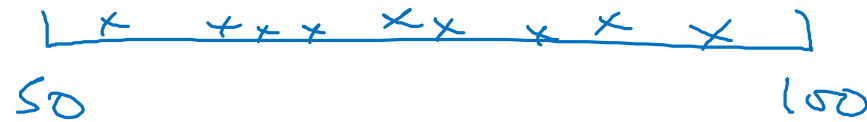
deeplearning.ai

Hyperparameter tuning

Using an appropriate
scale to pick
hyperparameters

Picking hyperparameters at random

$$\rightarrow n^{\text{test}} = 50, \dots, 100$$

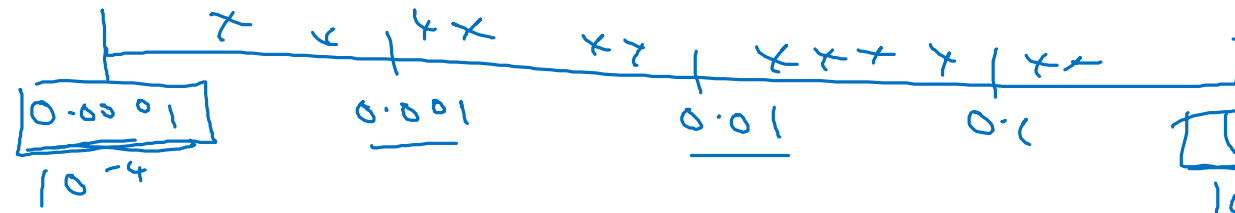
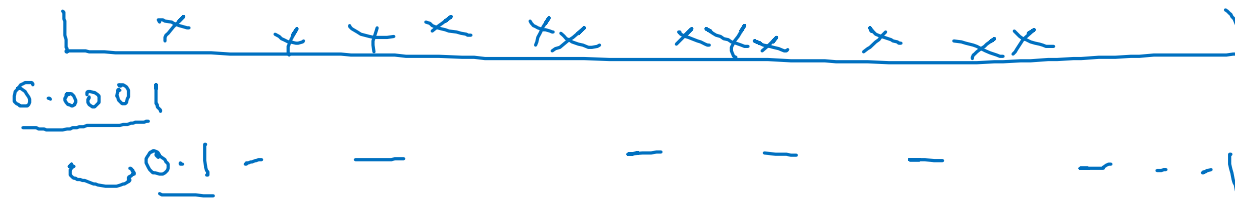


$$\rightarrow \# \text{layers} \quad L: \quad 2 - 4$$

$$2, 3, 4$$

Appropriate scale for hyperparameters

$$\alpha = 0.0001, \dots, 1$$



10^a
 $a = \log_{10} 0.0001 = -4$
 $r = -4 * \text{np.random.rand}()$
 $\alpha = 10^r$
 $r \in [-4, 0]$
 $10^{-4} \dots 10^0$

$$\frac{10^a \dots 10^b}{}$$

$$\frac{r \in [a, b]}{[-4, 0]}$$

$$\frac{\alpha = 10^r}{}$$

Hyperparameters for exponentially weighted averages

$$\beta = 0.9 \quad \dots \quad 0.999$$

\downarrow \downarrow
 10 1000

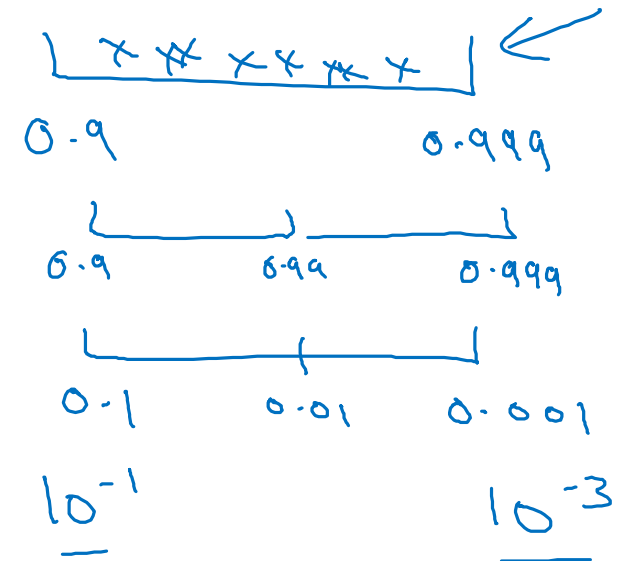
$$1 - \beta = 0.1 \quad \dots \quad 0.001$$

$$\beta: 0.999 \rightarrow 0.9995 \quad \sim 10$$

$$\beta: 0.999 \rightarrow 0.9995$$

~ 1000 ~ 2000

$$\frac{1}{1 - \beta_K}$$



$$r \in [-3, -1]$$

$$1 - \beta = 10^r$$

$$\beta = 1 - 10^r$$