



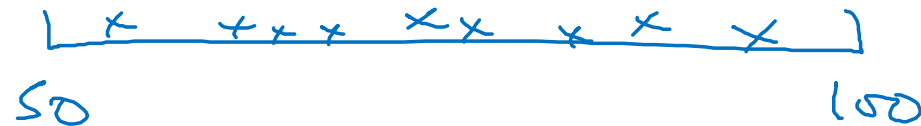
deeplearning.ai

Hyperparameter tuning

Using an appropriate
scale to pick
hyperparameters

Picking hyperparameters at random

→ $n^{\text{test}} = 50, \dots, 100$

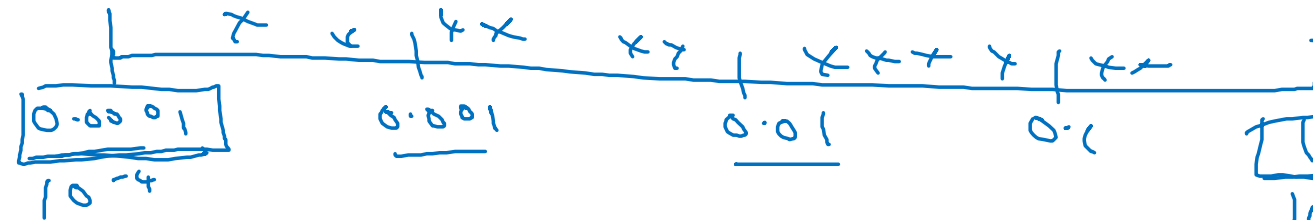
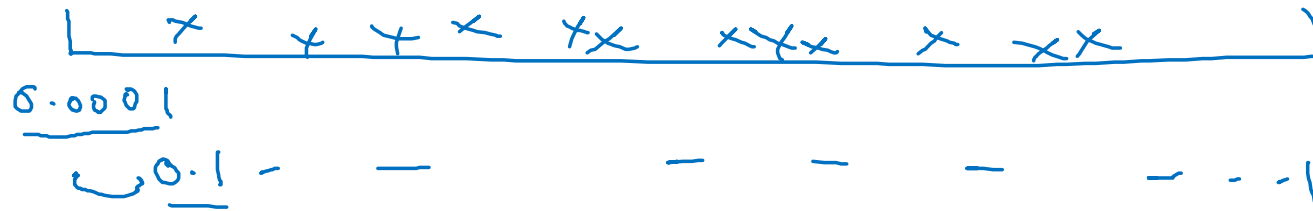


→ #layers $L: 2 - 4$

2, 3, 4

Appropriate scale for hyperparameters

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



10^a \rightarrow $\boxed{0.0001}$ $\frac{0.0001}{10^{-4}}$ \leftarrow $r \in [-4, 0]$ \leftarrow 10^0 \leftarrow 10^b $\frac{b = \log_{10} 1}{= 0}$
 $a = \log_{10} 0.0001 = -4$ $r = -4 * \text{np.random.rand}()$ \leftarrow $r \in [-4, 0]$ \leftarrow $10^{-4} \dots 10^0$
 $\alpha = 10^r$

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

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

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

Hyperparameters for exponentially weighted averages

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

\downarrow \downarrow
 10 1000

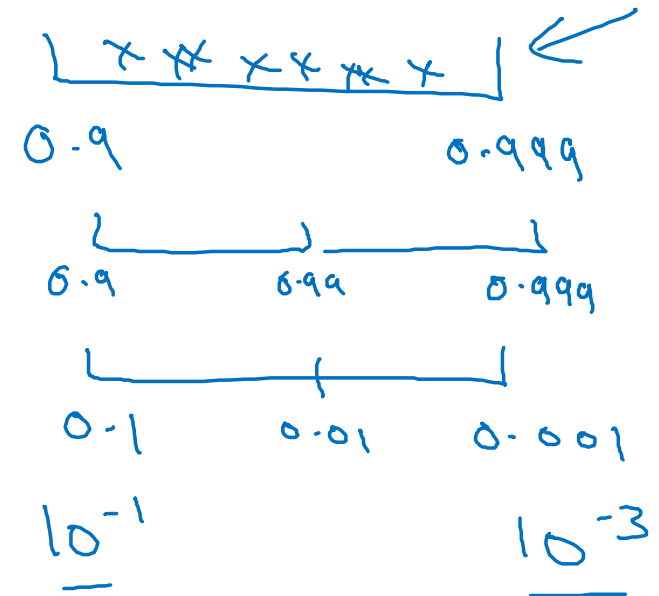
$$1 - \beta = 0.1 \quad \dots \quad 0.001$$

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

$$\beta: 0.999 \rightarrow 0.9995$$

~ 1000 ~ 2000

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



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

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

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