



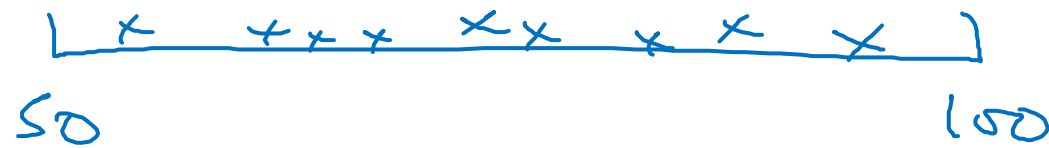
deeplearning.ai

Hyperparameter tuning

Using an appropriate
scale to pick
hyperparameters

Picking hyperparameters at random

→ $n^{\text{test}} = 50, \dots, 100$

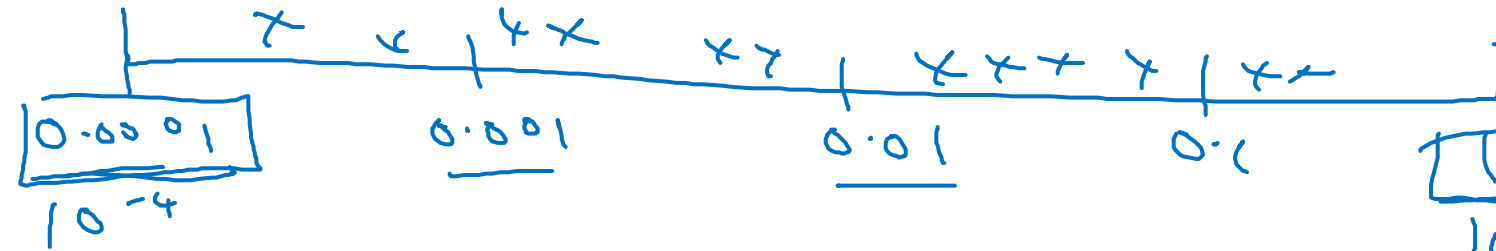
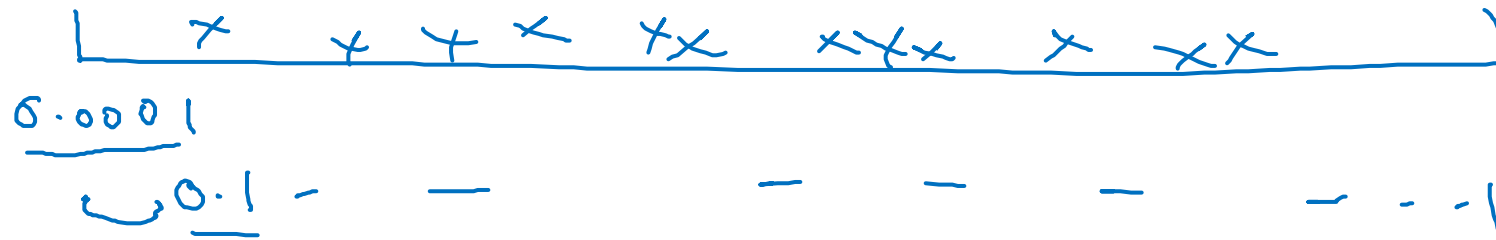


→ #layers $L: 2 - 4$

2, 3, 4

Appropriate scale for hyperparameters

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



$$10^a$$

$$a = \log_{10} 0.0001$$

$$= -4$$

$$r = -4 * \text{np.random.rand}()$$

$$\alpha = 10^r$$

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

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

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

$$\leftarrow r \in [-4, 0]$$

$$\leftarrow 10^{-4} \dots 10^0$$

$$\frac{b = \log_{10} 1}{= 0}$$

Hyperparameters for exponentially weighted averages

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

\downarrow
10

\downarrow
1000

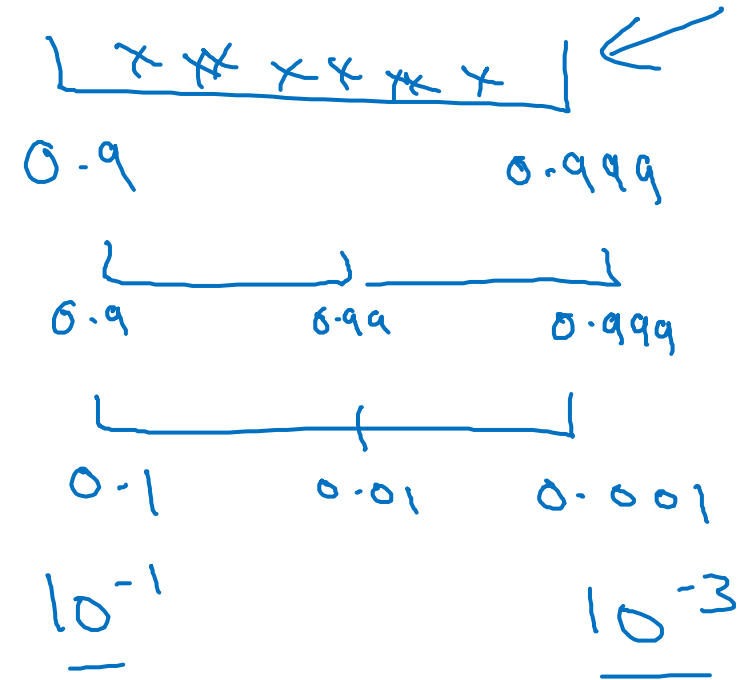
$$1 - \beta = 0.1 \quad \dots \quad 0.001$$

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

$$\beta: 0.999 \rightarrow 0.9995$$

~ 1000
 ~ 2000

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



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

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

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