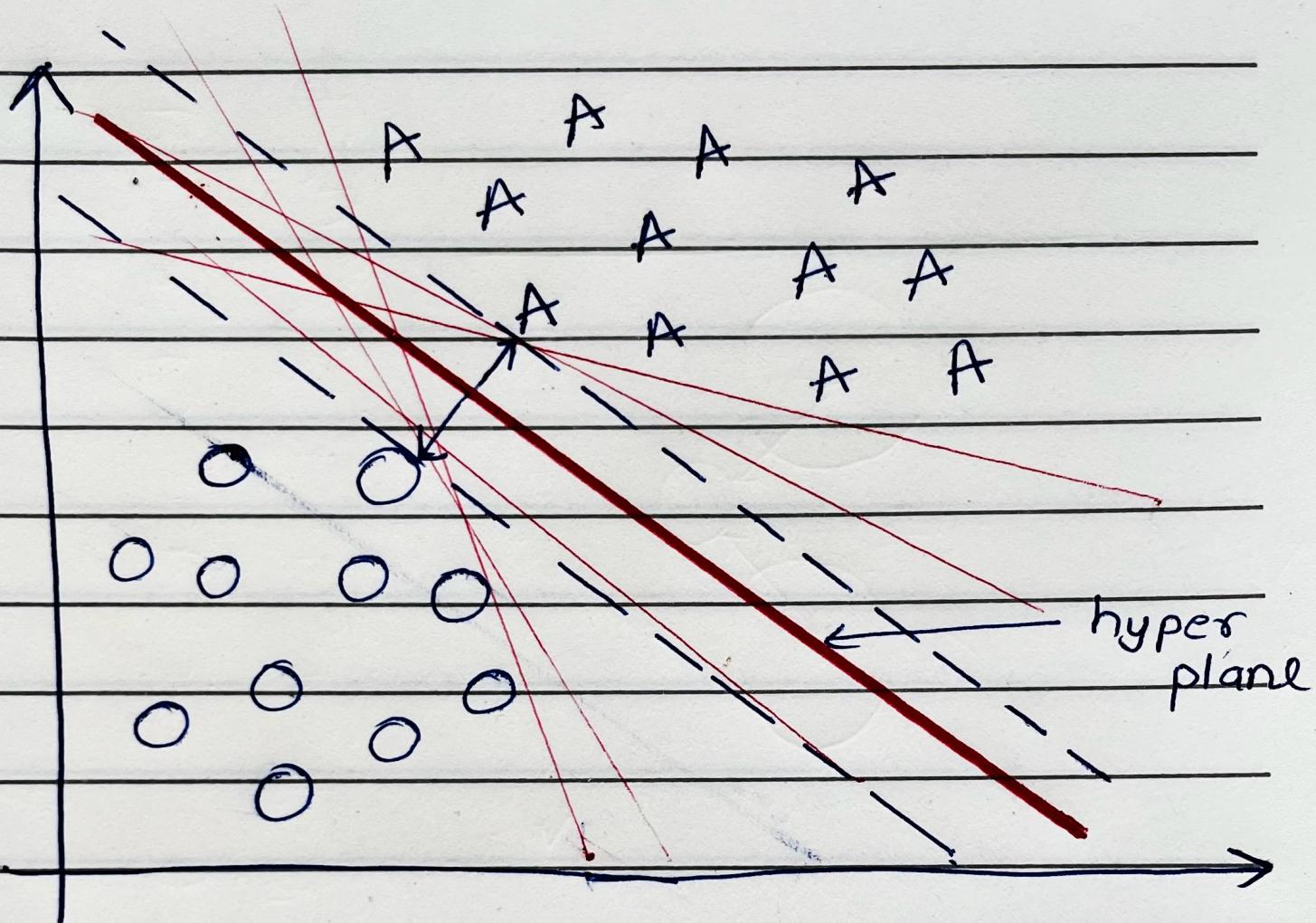


SVM



x_1	x_2	y

Polynomial ↴

$$f(x_1, x_2) = (x_1^T \cdot x_2 + 1)^D$$

$$\begin{bmatrix} x_1 \\ x_2 \end{bmatrix} \cdot \begin{bmatrix} x_1 & x_2 \end{bmatrix}$$

$$\begin{array}{c} 1 \downarrow \quad 2 \\ \boxed{x_1^2} \quad \boxed{x_1 \cdot x_2} \\ \boxed{\underline{x_1 \cdot x_2}} \quad \boxed{x_2^2} \quad 3 \end{array}$$

RBF

$$f(x_1, x_2) = e^{-\frac{\|x_1 - x_2\|^2}{2\sigma^2}}$$

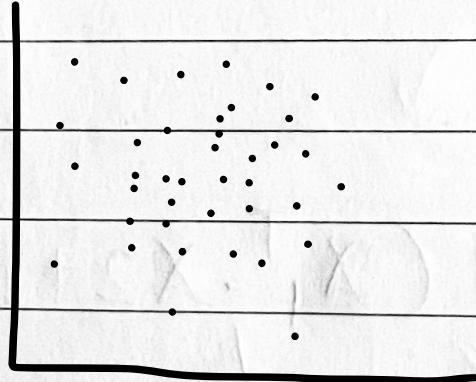
$d \rightarrow \text{distance} \rightarrow \|x_1 - x_2\|^2$

x_1

x_2



$$e^{-\frac{d}{2\sigma^2}}$$



$$\frac{1}{2\sigma^2} = r$$

$$\text{so, } \Rightarrow e^{-dr}$$