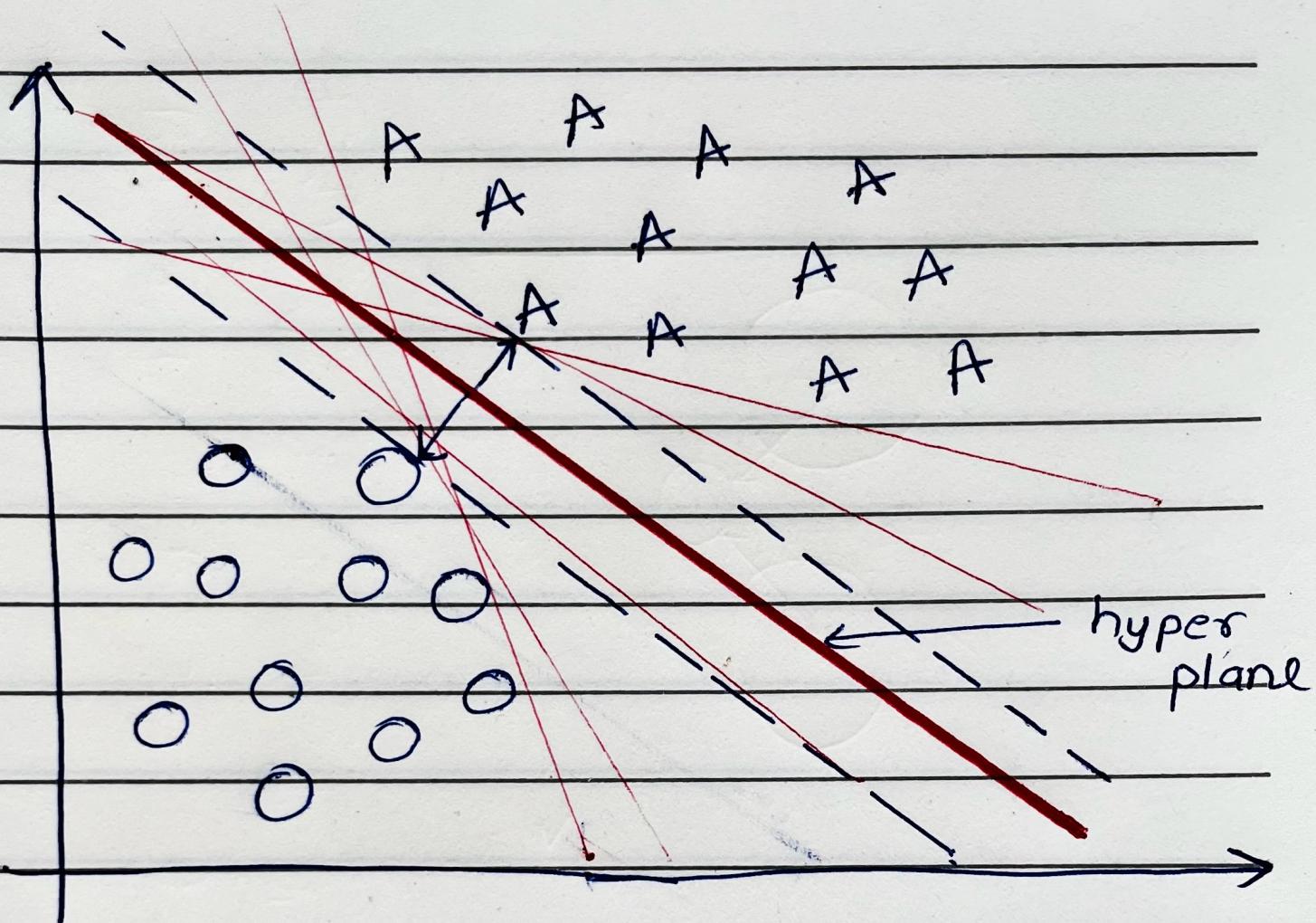


SVM



X1	X2	Y

Polynomial ↴

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

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

$$\begin{bmatrix} x_1^2 & x_1 \cdot x_2 \\ x_1 \cdot x_2 & x_2^2 \end{bmatrix}$$

RBF ↴

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

$$\begin{array}{ccc} d \rightarrow \text{distance} \rightarrow \|x_1 - x_2\|^2 \\ x_1 & & x_2 \\ & & \downarrow \\ & & e^{-d/2\sigma^2} \end{array}$$

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

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