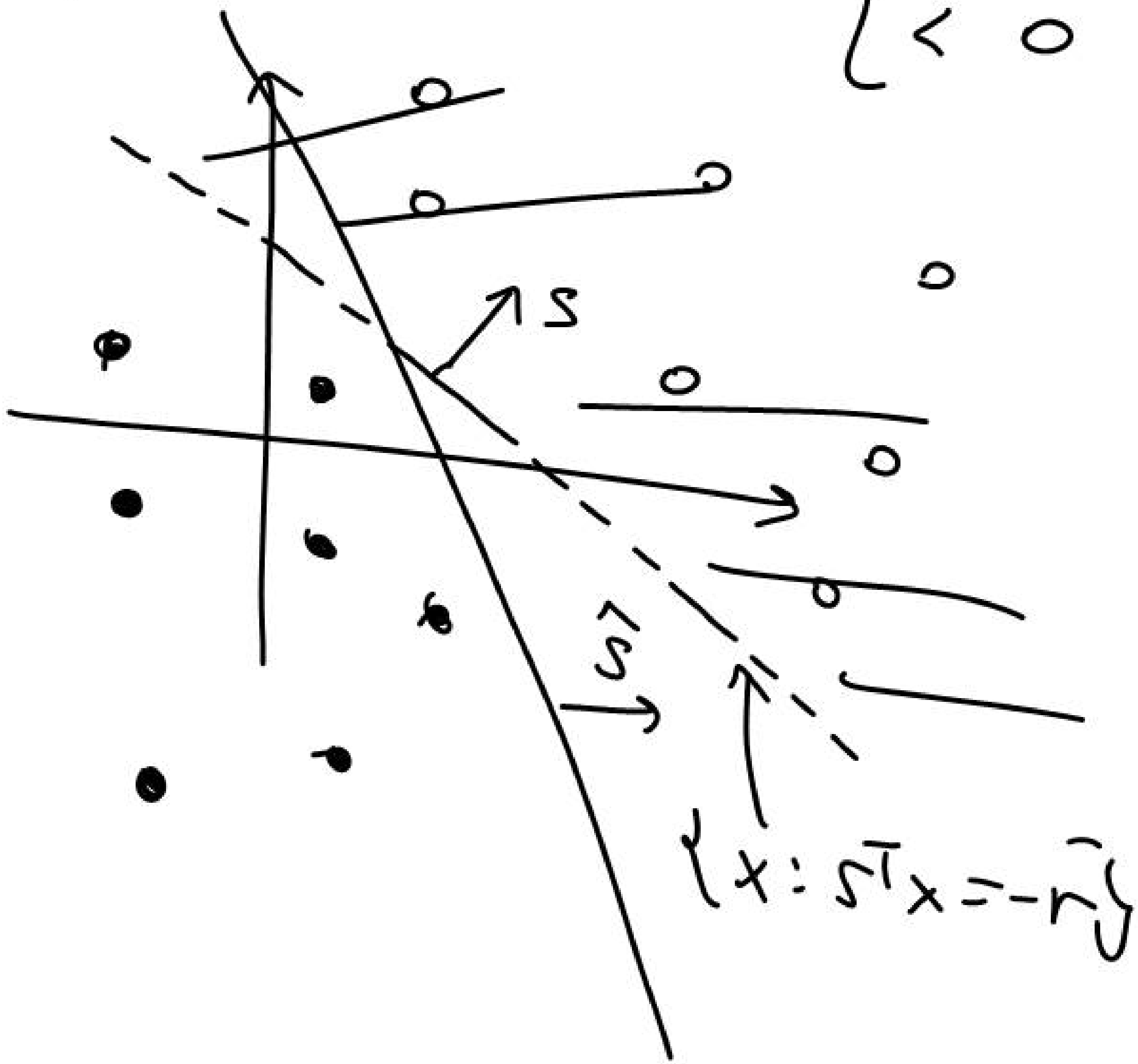
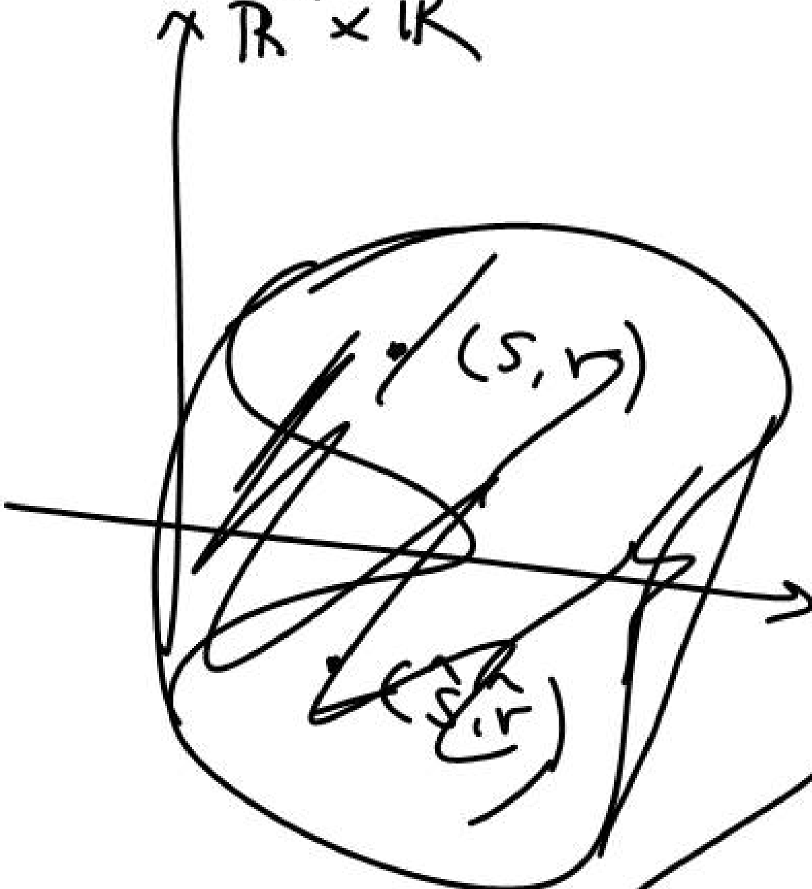
$$f_{s,r}(x) = s^T x + r \begin{cases} > 0 \\ < 0 \end{cases}$$





$$S = \{(s,r) : F_{s,r} \text{ is a separator}\}$$

$$F_{s,r}(x) = s^T x + r$$

$$s^T x_1 + r > 0$$

$$\vdots$$

$$s^T x_k + r > 0$$

$$s^T y_1 + r < 0$$

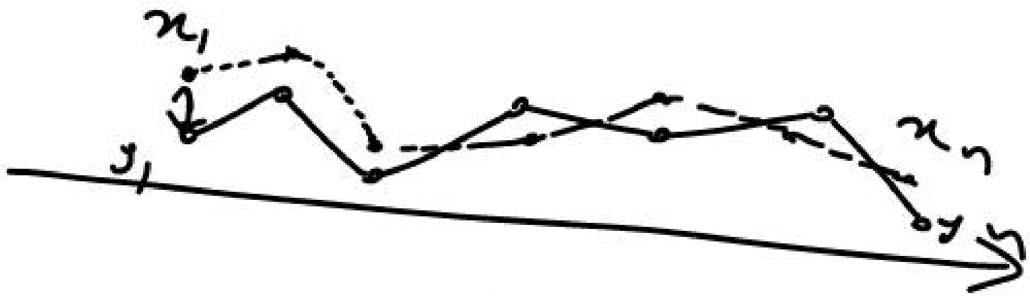
$$\vdots$$

$$s^T y_k + r < 0$$

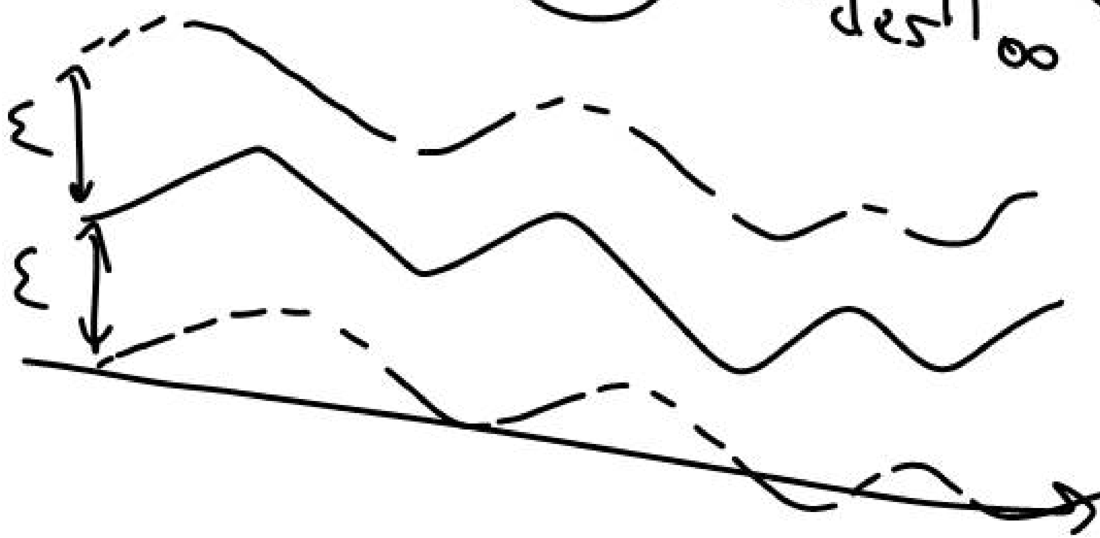
$$(s,r) \in S$$

$$H_{[x_1,-1],0} = \{(s,r) : [s^T\ r][$$

$$\|x - y\|_\infty = \max\{|x_i - y_i| : i = 1, \dots, n\} \quad x, y \in \mathbb{R}^n$$



$$S = \{x \in \mathbb{R}^N : \|Hx - y_{des}\|_\infty \leq \varepsilon\}$$



$$s^T x_1 + r > 0 \iff H_{\left(\begin{bmatrix} x_1 \\ 1 \end{bmatrix}, 0\right)} = \left\{ (s, r) : \left\langle \begin{bmatrix} s \\ r \end{bmatrix}, \begin{bmatrix} x_1 \\ 1 \end{bmatrix} \right\rangle > 0 \right\}$$