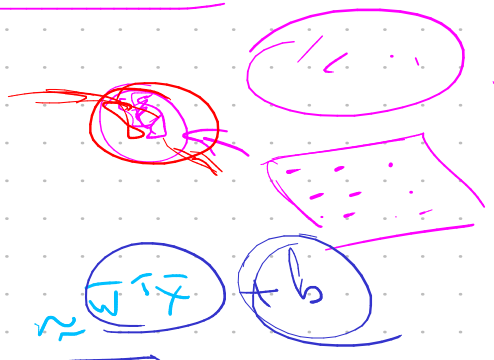
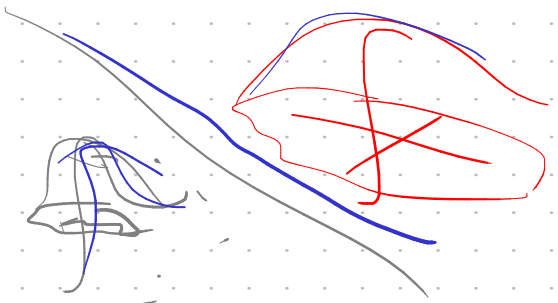


$$p(C_k | \bar{x}) = \frac{p(\bar{x} | C_k) p(C_k)}{\sum p(\bar{x} | C_i) p(C_i)} = \sigma(\bar{w}^T \bar{x})$$

$p(C_1) = 0.9$
 $p(C_2) = 0.1$



$$p(C_1 | \bar{x}) = \frac{1}{1 + e^{-\log \frac{p(C_1 | \bar{x}) p(C_1)}{p(C_2 | \bar{x}) p(C_2)}}} = -\log(\bar{w}^T \bar{x}) - \log a$$



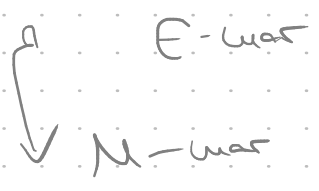
$f(\bar{x}_{-2}) = x_2?$

- \bar{x}_1 ($x_{11}, x_{21}, \dots, x_{d1}$)
- ~~\bar{x}_2~~ ($x_{21}, z_{22}, x_{31}, \dots, x_{d1}$)
- \bar{x}_3 ($x_{31}, x_{32}, x_{33}, \dots, x_{3d}$)

$y_1 = \sigma(\bar{w}^T \bar{x}_1)$
 $y_2 = \sigma(\bar{w}_{-2}^T \bar{x}_{2,-2} + w_2 \cdot z_{22})$
 $y_3 = \sigma(\bar{w}^T \bar{x}_3)$

$p(D | \bar{w}, z_{22}) = \dots \rightarrow \max$

EM-algorithm



$E[z_{22} | \bar{w}] = ?$

$p(D, E[z_{22}] | \bar{w}) \xrightarrow{\bar{w}} \max$