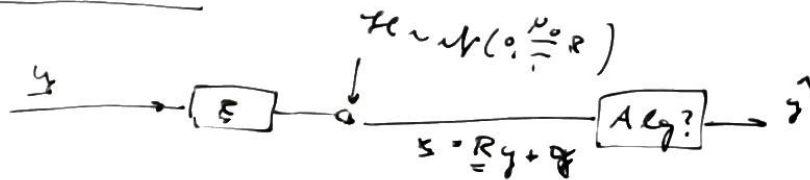


Eigenwertmodell:



$$C_{opt} := \min_{\hat{y}} P(\hat{y} \neq y)$$

Messj.:

1.)  $M \leq N$  dann orthogonales Tablett  $\rightarrow H.$   
 $R = T$

2.)  $M > N$  kein orth. Tablett  $\rightarrow C_{opt}$

- ① NP
- ② Privacy
- ③ Gitterbasen

keine orthog. Tablett  $\rightarrow$   
 - Privacy  
 - Gitter  
 - keine

MAP

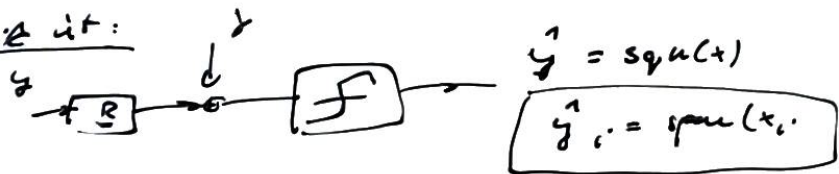
$$\hat{y}_{opt} := \arg \max_y P(y | z) \xrightarrow{\text{Bayes}} \sim \arg \max_{y \in \{-1, 1\}^M} \frac{P(x | y) \cdot P(y)}{P(x)} \sim \arg \max_{y \in \{-1, 1\}^M} P(x | y)$$

$$\arg \max_y (x - Ry)^T \sim \arg \max_{y \in \{-1, 1\}^M} y^T \cdot Ry - 2x^T y \quad \text{komplexes cell NP}$$

$$R^{-1}(x - Ry)$$

$$\sim O(2^M)$$

Wahrscheinlichkeit:



$$P(\hat{y} \neq y)$$

Orthogonales Tablett catch (CDMA DS)

$$\frac{1}{N} c^{(i)} c^{(j)T} = \delta_{ij} = \begin{cases} 1 & i=j \\ 0 & i \neq j \end{cases} \rightarrow R = T$$