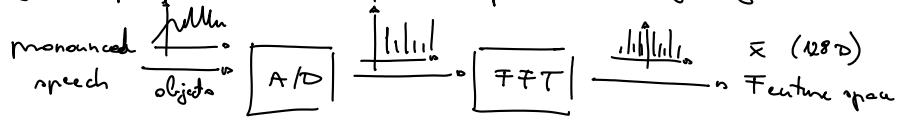
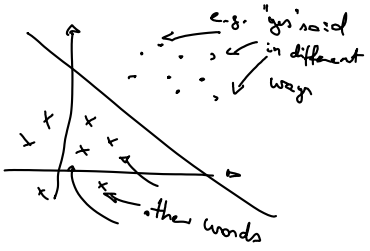
Pattern recognition by a single AN

2016. szeptember 19., hétfő 16:21

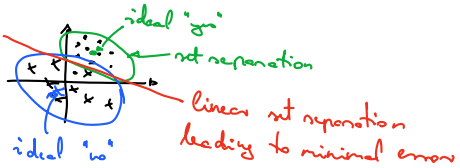
Objects represented in a "feature-space" → distinguishing different objects in the feature space





Examples:

Distinguish "yes" and "no" pronounced



Select tanks

Select malfunctioning (example) by its spectrum

Mathematical model:

$\bar{\nu}$ · noise (random variable)

$\{\bar{u}, \bar{v}\} \xrightarrow{\bar{\xi}} \oplus \rightarrow \bar{\eta} = \bar{\xi} + \bar{\nu} \rightarrow \bar{x}$: observation (realization of $\bar{\eta}$) → [??] → $\bar{u}$ / $\bar{v}$

"yes" "no" unobservable "a priori" variable

Maximum likelihood decision

if $p(\bar{x}|\bar{u}) > p(\bar{x}|\bar{v})$ then $\bar{u}$

if $p(\bar{x}|\bar{u}) < p(\bar{x}|\bar{v})$ then $\bar{v}$