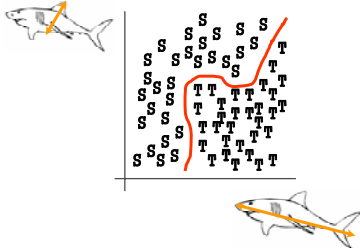
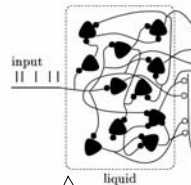


NON LINEAR CLASSIFICATION PROBLEMS



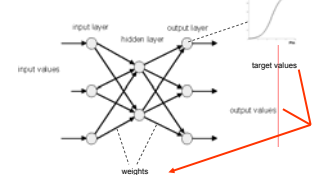
NEURAL NETWORKS

WITH Feedback: Recurrent



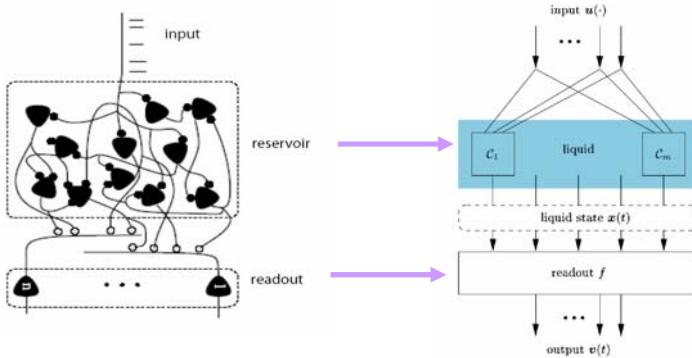
MEMORY
=> can handle
time correlations
but HARD to train

WITHOUT Feedback:
Feed-Forward



NO MEMORY
=> impossible to
extract time
correlations
but EASY to train

DIVIDE ET IMPERA:



RESERVOIR COMPUTING

RESERVOIR => WITH Feedback
=> INTERESTING TEMPORAL PROPERTIES => UNTRAINED

READOUT FUNCTION => NO Feedback => EASY TO TRAIN

CONCLUSION: NOVEL CONCEPT

WITH INTERESTING PROPERTIES
AND
EASY TO TRAIN

MICROCAVITIES
HIGH DENSITY $\uparrow\uparrow$
NON LINEAR EFFECTS $\uparrow\uparrow$

POWER EFFICIENT
FAST

A PHOTONIC HARDWARE IMPLEMENTATION

AS AN ALTERNATIVE TO SOFTWARE CODED

CONNECT THE
CAVITIES INTO A
RESERVOIR

MICROCAVITY:
-PHOTONIC CRYSTAL
CAVITIES
-MICRODISKLASERS
-SOA

