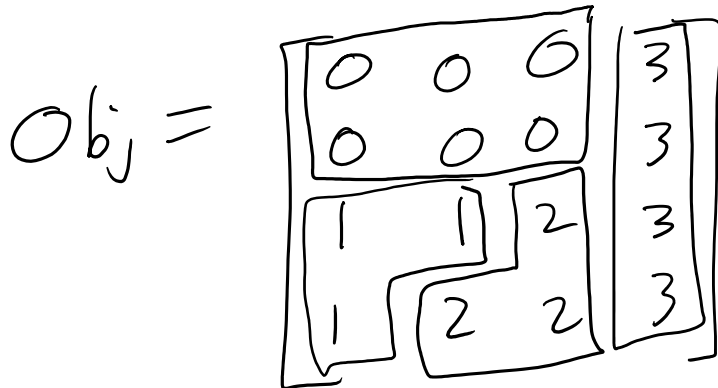


$$-15 + 22 - 145$$

$$\text{Result} = \begin{bmatrix} 15 & 13 & 12 \\ 14 & -138 & \square \\ 12 & -11 & \square \\ 15 & 10 & 13 \end{bmatrix}$$

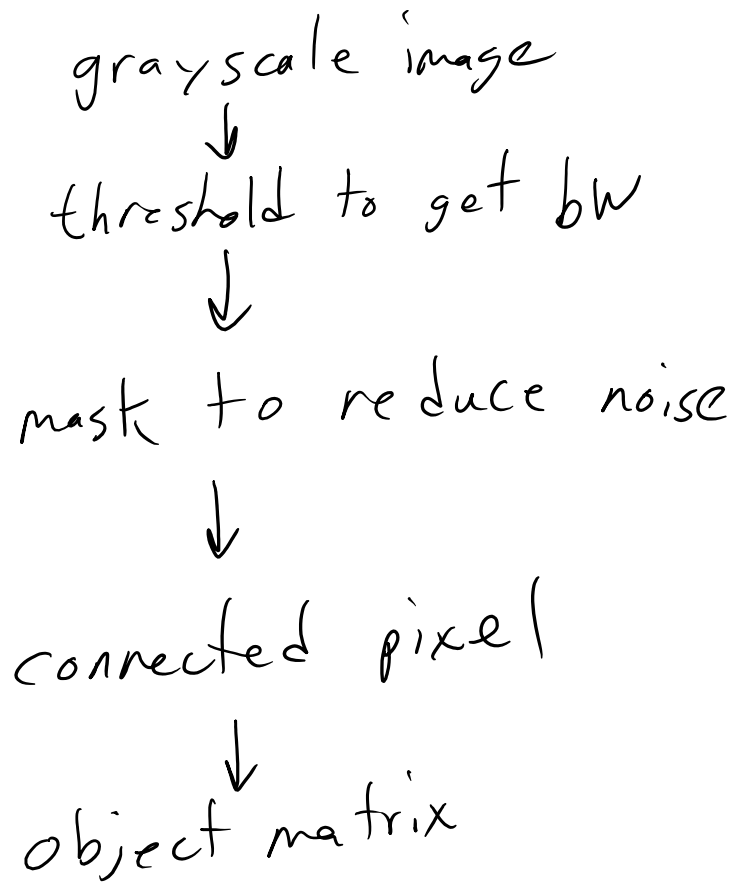
$$-14 + 16 - 13$$

object matrix



RGB image





online vs offline

think
act
think
act

dynamic or
changing
environment

depth-first

all the thinking
all the acting

breadth-first

will work better,
but much slower

informed

vs

uninformed
1 1 1 1 1

informed vs

robot knows (or can estimate) how far from the goal state it is

A^*

use if info is available

supervised

we have (and give the algorithm) labels on the training data saying which category (or class) each data point belongs to

Support Vector Machine
Artificial Neural Network

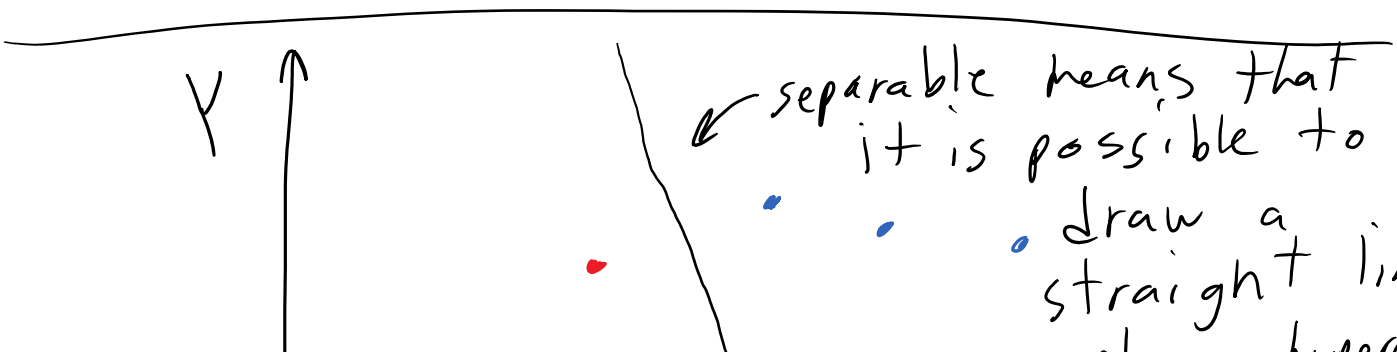
uninformed

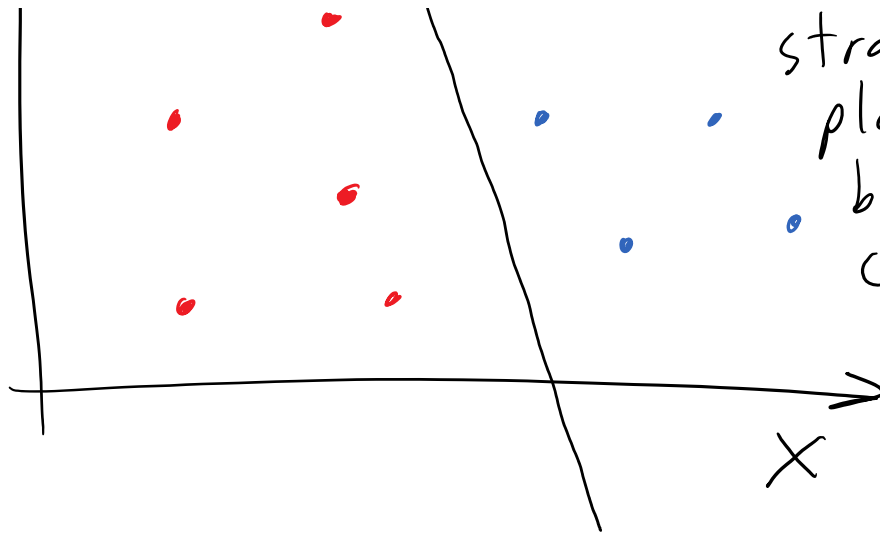
depth-first
and
breadth-first

only use info not available

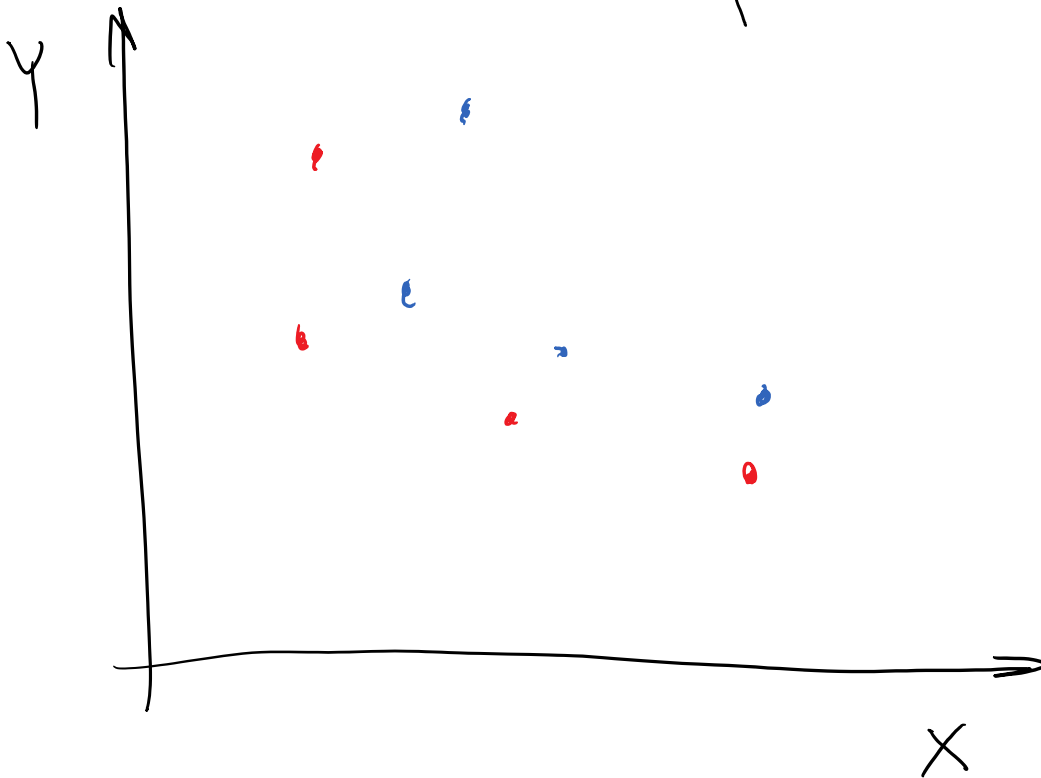
unsupervised

K-means clustering

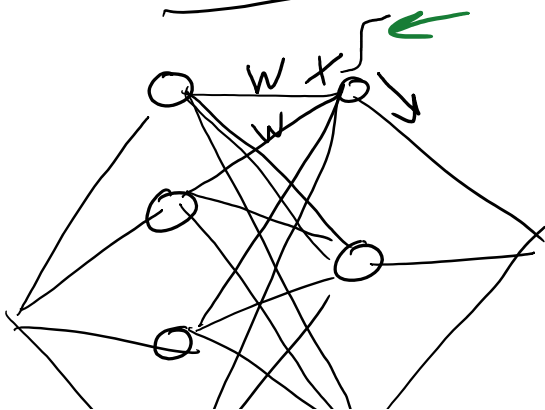




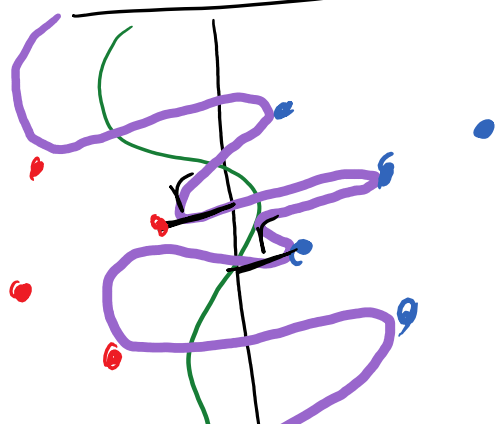
straight line,
plane, hyperplane
between the
classes of
data



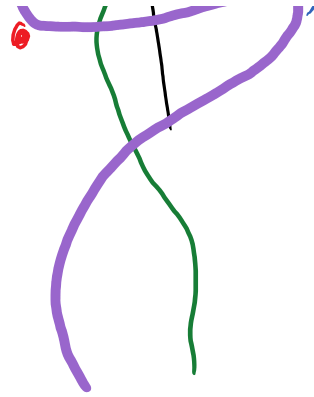
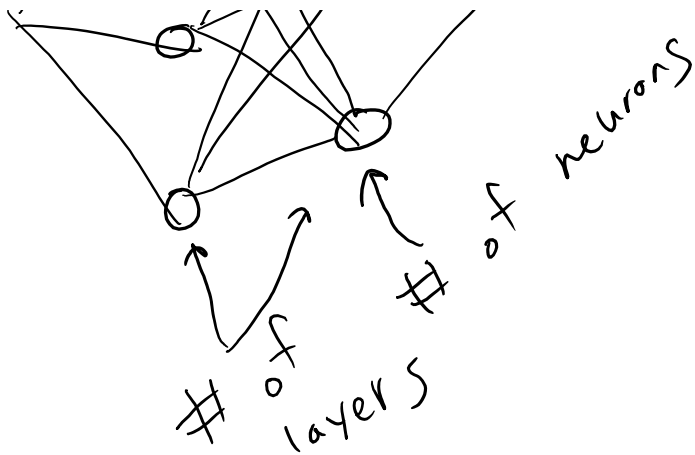
ANN



SVM



SVM



optical flow

based on masking
(3D mask)

pros

speed and direction
of motion

difference

subtraction

pros

computationally
simple