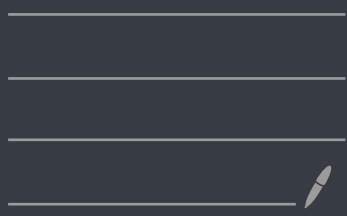


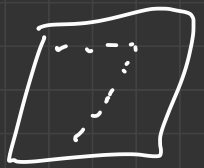
MATH 462 2021/01/24

Lecture 8

⟹ Read Revised Notes.
"Lecture Notes Part 2"
on github

Future
1. optimization
2. HW2 coming
3. Midterm 1 (based on HW1 & 2)
coming soon!

MNIST



0 1 2 3

2 classes

$x_{ij} \in [0,1]$ $\quad i,j = 1,\dots,12$

$\dim 12^2$

$$x = \begin{cases} 5 & y=-1 \\ 5 & \\ 6 & y=+1 \\ 6 & \end{cases}$$

$h_w(x) = w_{ij} \cdot x_{ij}$

$$L(w) = \frac{1}{m} \sum_{i=1}^{m} \ell(h_w(x_i), y_i)$$

Relate to Majority :

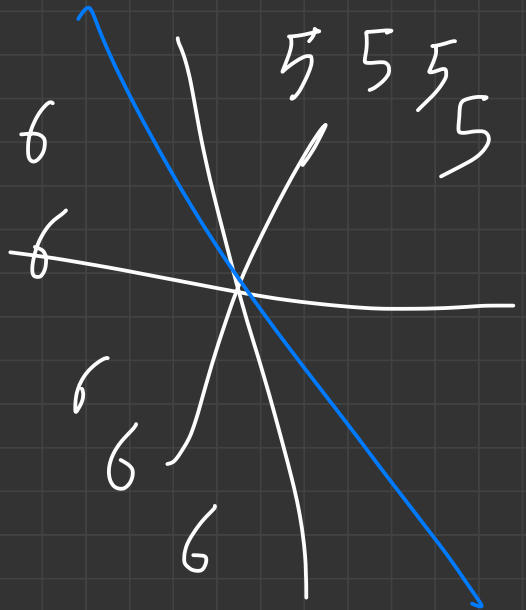
Input

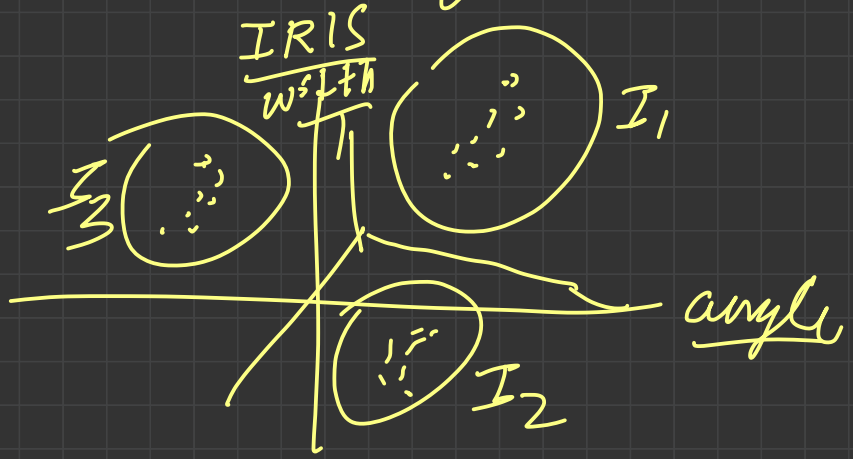
$S = W \cdot h(x)$

Bins

$\{S \geq 0\}$ Bin +1

$\{S \leq 0\}$ bin −1





Score

min $L(w)$ scores.

prob

$h_w(x)$

$p = \sigma(h_w(x))$