



Pattern Recognition

(Introduction and Uses)

Why it is important to learn pattern recognition?

Examples:

- Identifying criminals from photograph
 - Face recognition problem
- Classification of pixels in satellite images
 - Land cover types
 - Water region
 - Hilly region
 - Building
 - Rice fields
 - Barren land
 - Forest
 - Snow
 - Sand

What is the use of doing this classification?

Some of the civil uses:

- How much forest area may be getting depleted every year?
- In Jamshedpur you are planning to construct metro
- In the border area the amount of construction taking place
- How much area is devastated in the floods?
- In earthquake
- In drought
- Other natural calamities

Satellite images is one example where you need to use pattern recognition.

Other example corresponding to human intelligence

- Chalk piece on the floor
- Instead of human being same thing done by robot

Introduction(cont...)

How does robot do it? How does know it?

- Image processing
- Computer vision

Other subject

- Medical imaging

How do we think?

- Pattern recognition people want to model the thinking process, the human brain.

Human being can think logically, can make logically.

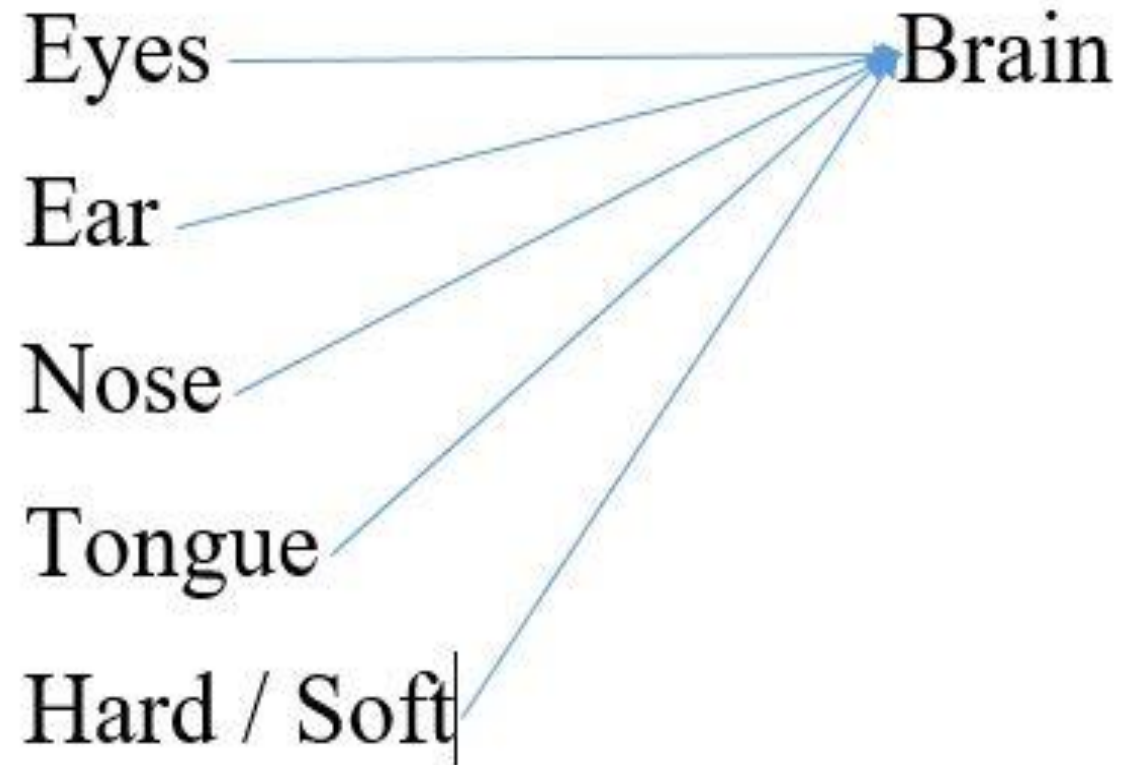
What is logic?

Contd...

Five basic senses of human being:

- Eyes
- Ear
- Nose
- Tongue
- Hard / Soft

Contd...



Contd...

LEARN

- Put the process of learning in a m/c
- We are actually making a machine which somehow is replacing human being
- People are emotional
- When we are emotional many times we may not be able to think logically

If you make a machine without any emotions then that machine would be a much better machine than a human being.

Contd...

The facilities human being possess, devise one such machine so that:

- it can walk
- it can speak
- it can hear
- it can see
- it is able to know how an object smells
- it must also know whether an object is hard or soft

All these things

- i) simulate
- ii) model in the machines

This is the ultimate goal of the subject pattern recognition.