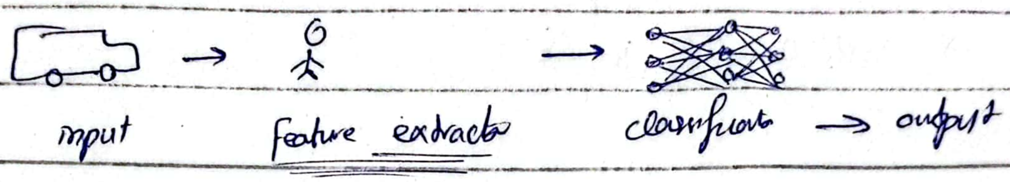
Lecture 22 - "Introduction & Basis of Deep learning"

- conventional M/L
  - ↳ supervised
  - ↳ unsupervised



Limitations (Short Coming)

i) can't handle directly unstructured data
   text, images etc
   (∴ To solve we use feature/Data Engineering)

ii) Can't directly work with high dimensional data
   اگر انٹیرز یا 10 کالم وغیرہ ہیں تو ٹھیک ہے
   (dimension/column)   اگر 5 ہزار کالم ہیں
   (∴ To solve we use dimensionality reduction)

iii) can only learn from available data.
   (performance does not increases after certain threshold)
   ایک حد تک وہ سیکھ سکتے ہیں اس کے بعد جتنا
   دیں گے وہ نہیں سیکھیں گے -

To overcome these limitations we have another technique ⇒ ✓ **Neural Technique**

✓ (• can directly work with unstructured data)

✓ (• No need to extract feature manually. can do automatically)

Neurons over come the limitation of conventional NN.

Deep learning

- Simple Neural Network ⟶ depth of neural network
  - increasing layers/neurons
  - in
- more data ⟶ more layers ⟶ The better it (Deep Neural Network loves data) can learn so

Why now popular

① Data

② Compute (computational power)

③ Algorithms (different & advance algo's ⇒ researcher

* Disruption is an opportunity

in deep neural network we can perform → parallel operations

(AI current evolves ⇒ Thanks to Deep learning)