












deeplearning.ai

Introduction to Deep Learning

Supervised Learning
with Neural Networks

Supervised Learning

| Input(x)  | Output (y)  | Application |
|--|--|--|
| Home features | Price | Real Estate  |
| Ad, user info  | Click on ad? (0/1) | Online Advertising |
| Image | Object (1,...,1000) | Photo tagging  |
| <u>Audio</u> | Text transcript | Speech recognition  |
| <u>English</u> | Chinese | Machine translation |
| <u>Image</u> , <u>Radar info</u>  | Position of other cars  | Autonomous driving  |

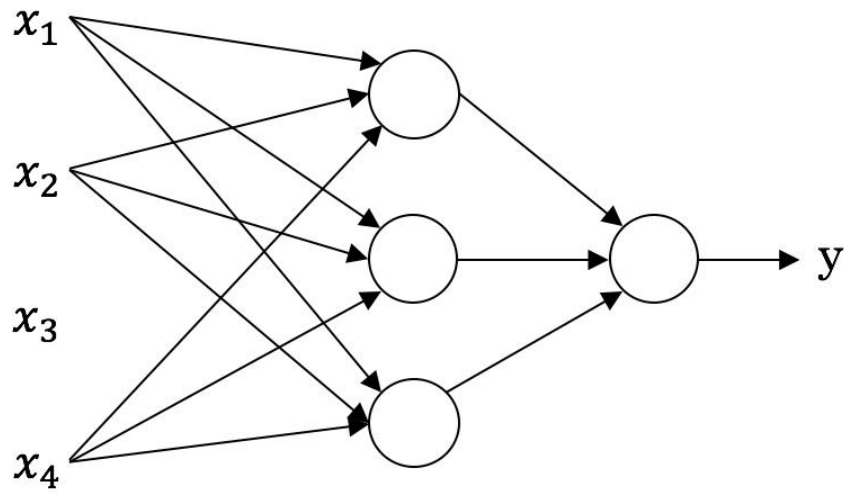
Standard NN

CNN

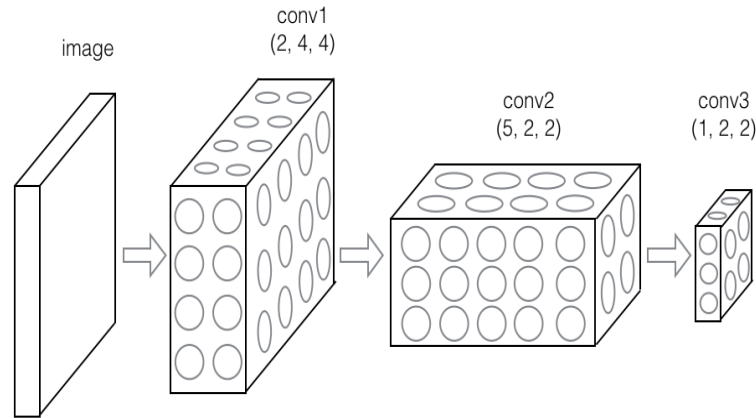
RNN

Custom/Hybrid

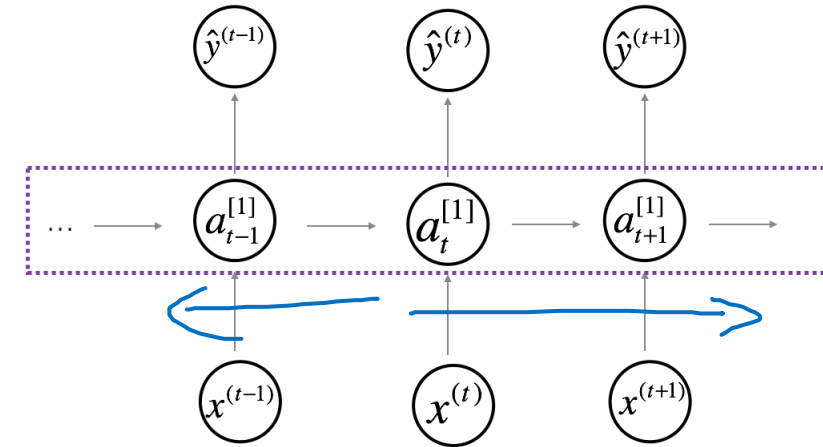
Neural Network examples



Standard NN



Convolutional NN



Recurrent NN

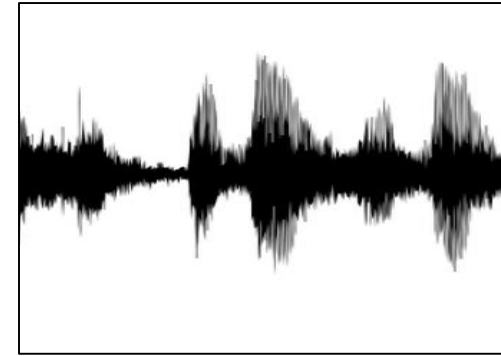
Supervised Learning

Structured Data

| Size | #bedrooms | ... | Price (1000\$s) |
|------|-----------|-----|-----------------|
| 2104 | 3 | | 400 |
| 1600 | 3 | | 330 |
| 2400 | 3 | | 369 |
| ⋮ | ⋮ | | ⋮ |
| 3000 | 4 | | 540 |

| User Age | Ad Id | ... | Click |
|----------|-------|-----|-------|
| 41 | 93242 | | 1 |
| 80 | 93287 | | 0 |
| 18 | 87312 | | 1 |
| ⋮ | ⋮ | | ⋮ |
| 27 | 71244 | | 1 |

Unstructured Data



Audio



Image

Four scores and seven
years ago...

Text