Module

Artificial Intelligence Fundamental

Section

Recap AI, ML, DL

Traditional Programming vs Machine Learning

```
if(speed<4){
  status=WALKING;
}
```

```
if(speed<4){
    status=WALKING;
} else {
    status=RUNNING;
}
```

```
if(speed<4){
    status=WALKING;
} else if(speed<12){
    status=RUNNING;
} else {
    status=BIKING;
}
```

?

Images Source: https://developers.google.com/codelabs/tensorflow-1-helloworld#0

https://youtu.be/KNAWp2S3w94

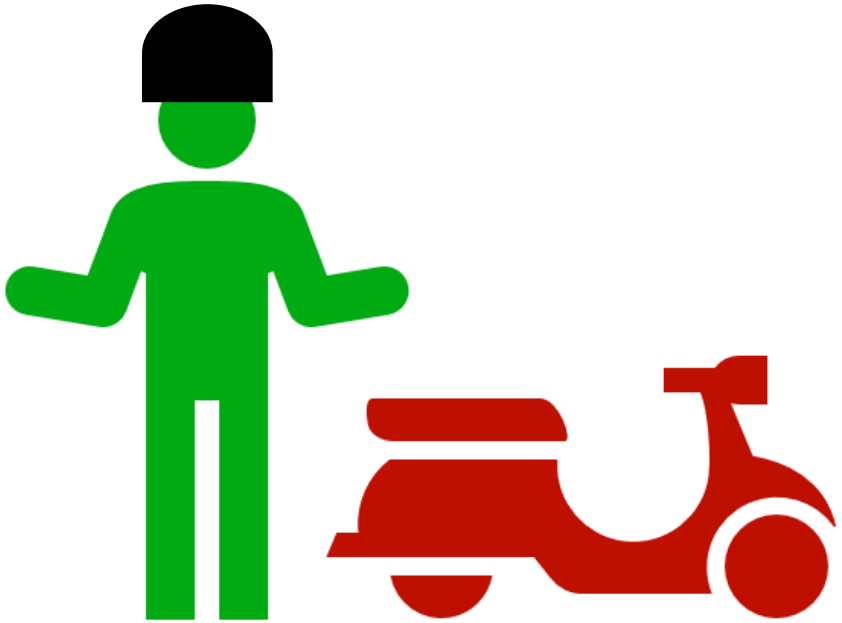
Machine Learn from Data

Contoh

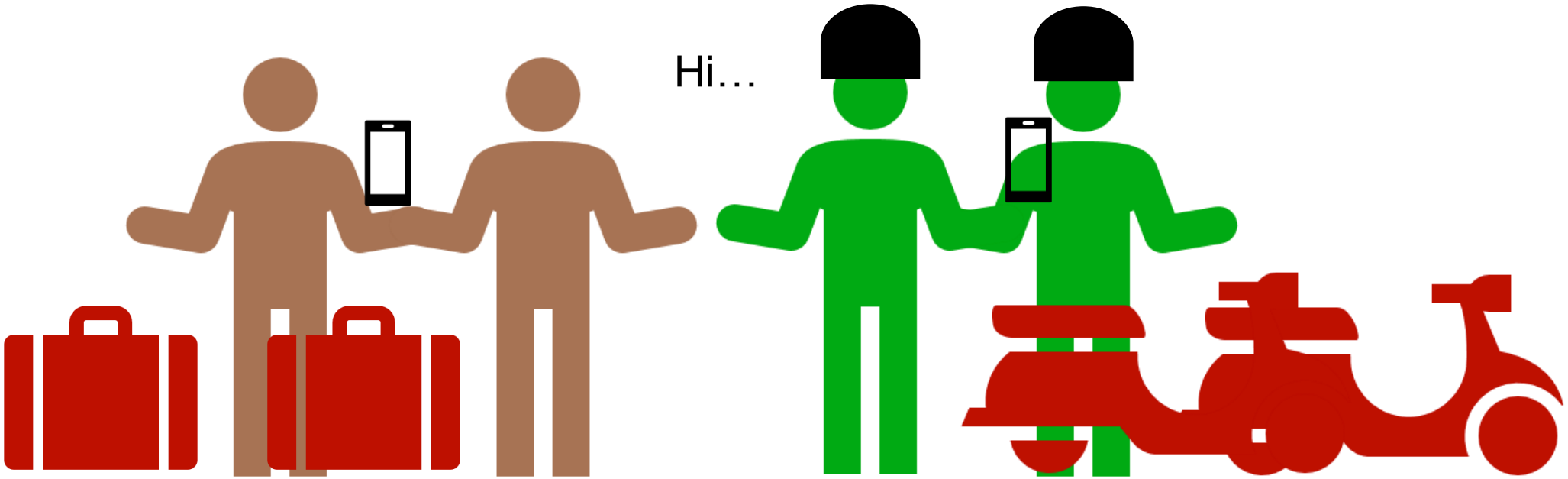
Ojek Online

We have problem…

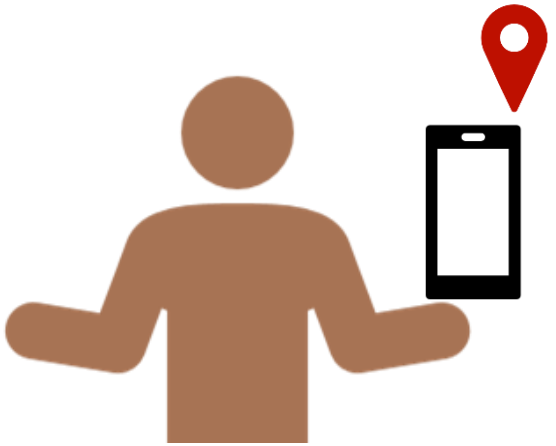
Penumpang



Pengemudi

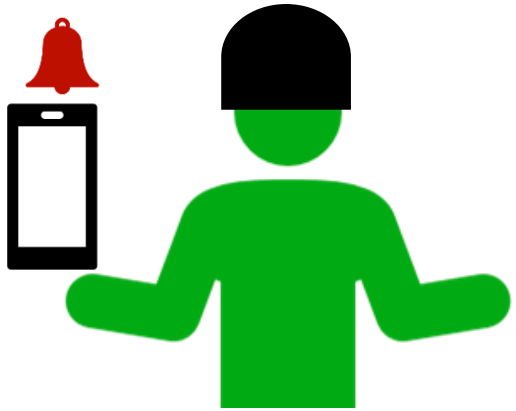


Penumpang **Pengemudi**



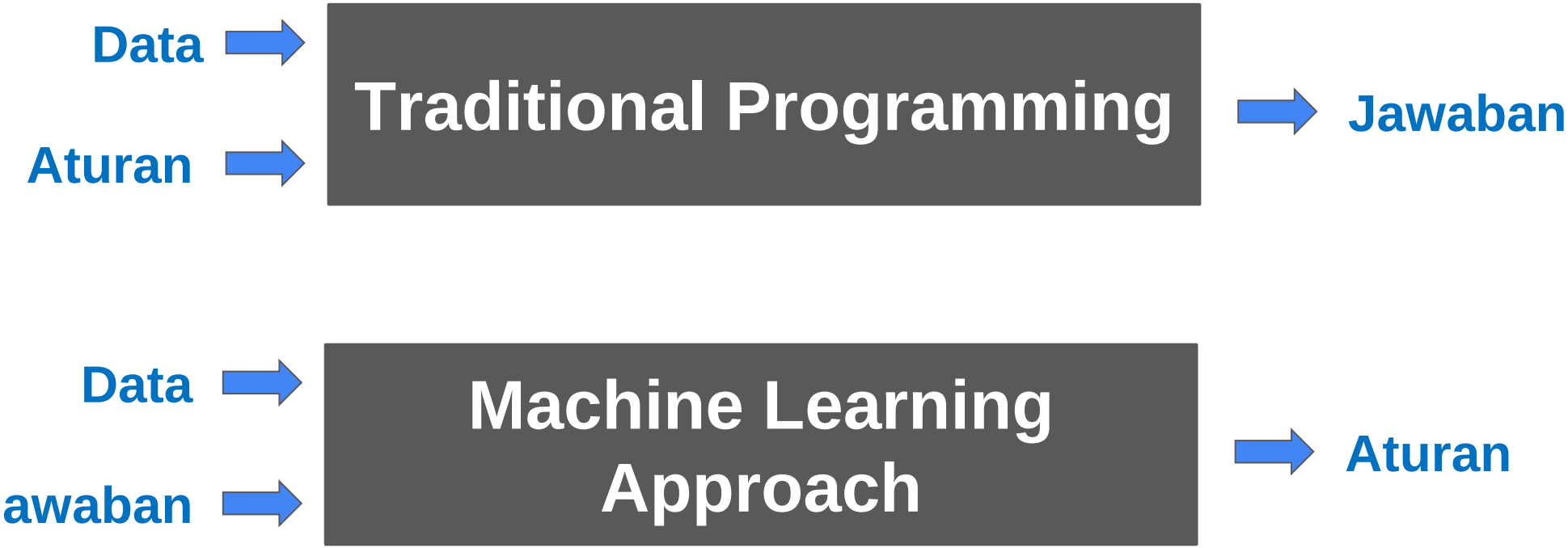
- Lokasi
- Tujuan

- Tarif
- Rute

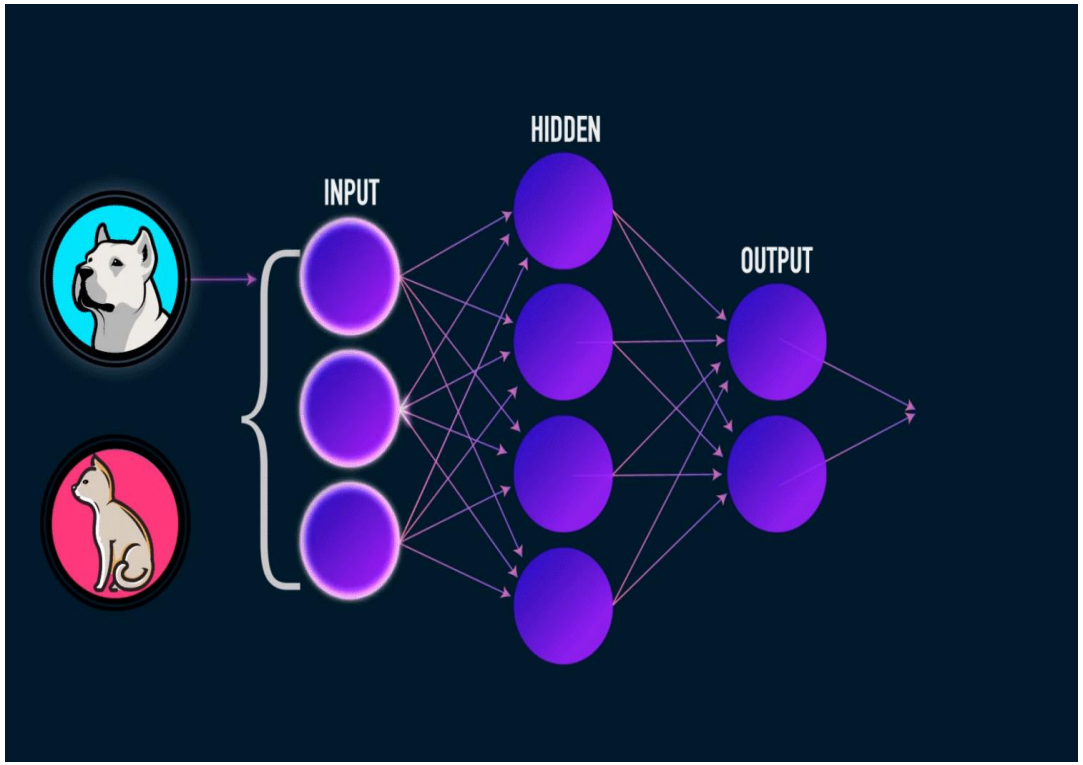


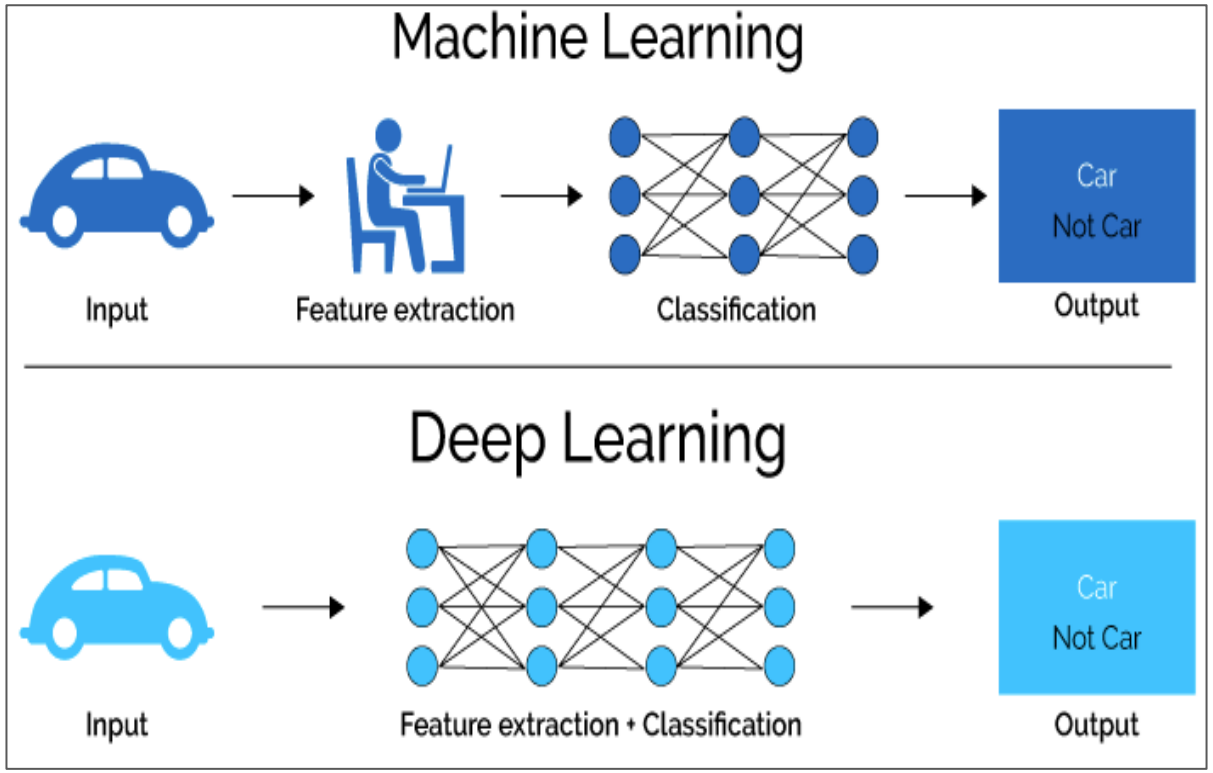
- Lokasi
- Tujuan
- Tarif
- Rute

Traditional Programming vs Machine Learning Approach



Machine Learning v Deep Learning

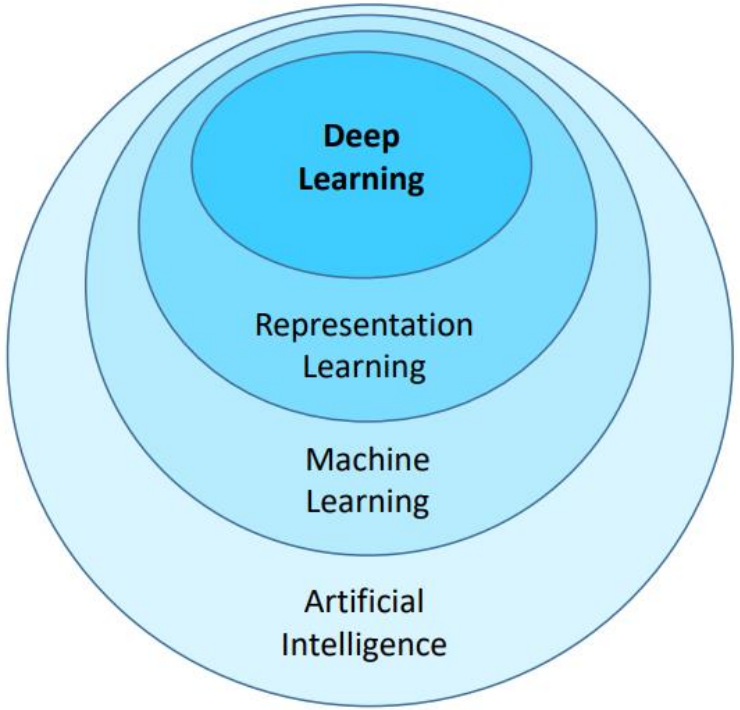


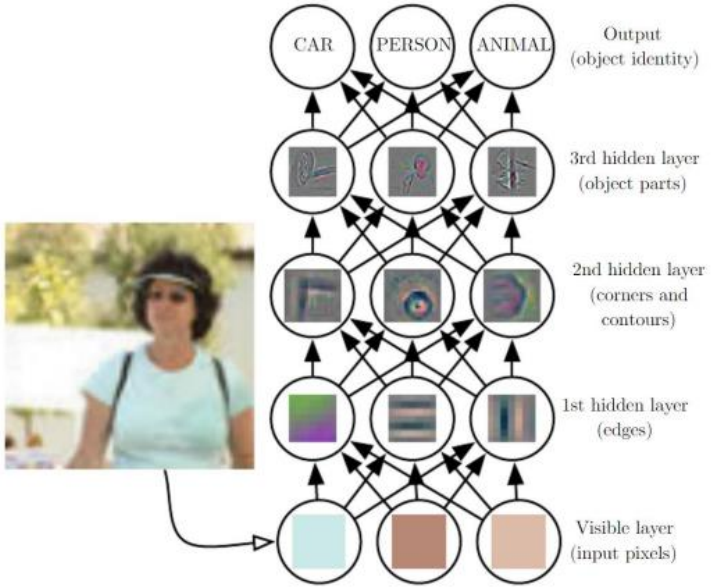


Images Source: Google Image

Deep Learning is **Representation Learning**

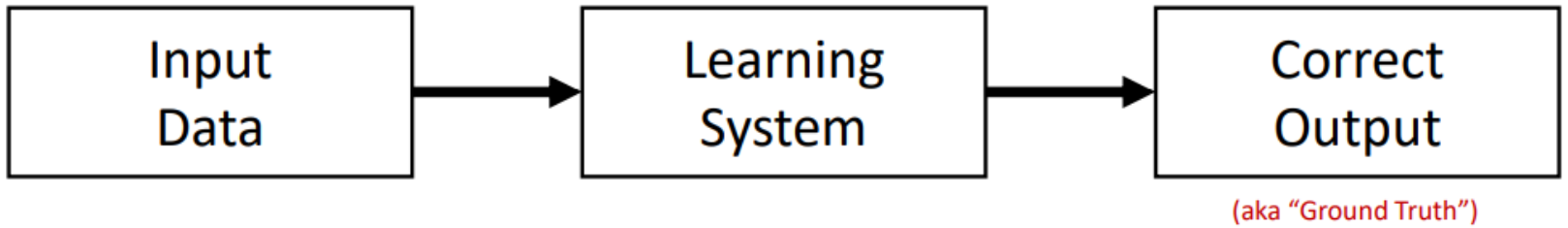
(aka Feature Learning)



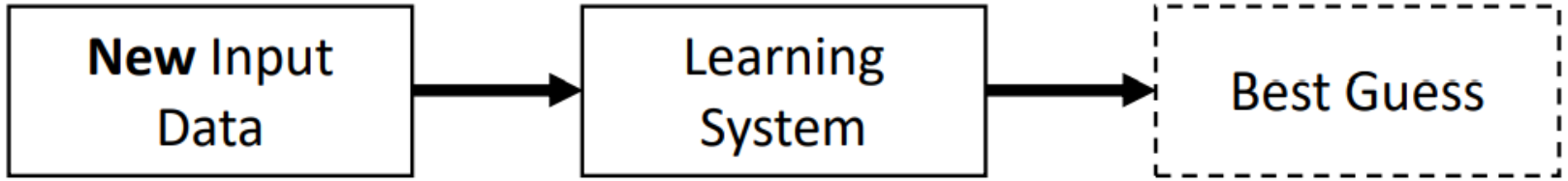


Deep Learning: Training and Testing

Training Stage:

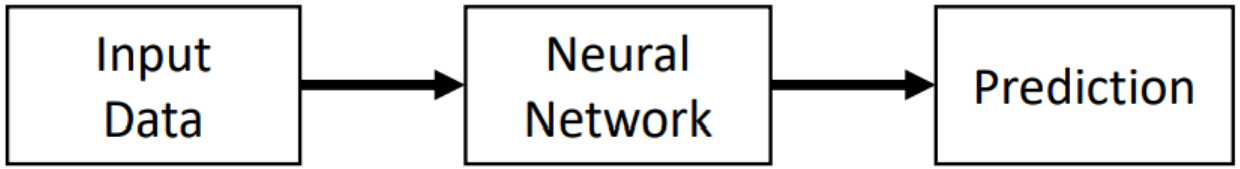


Testing Stage:

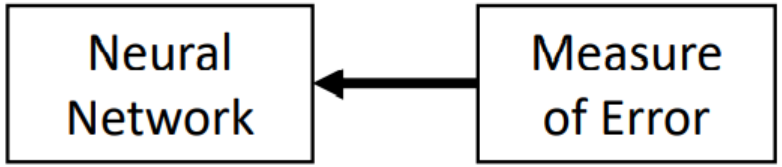


How Neural Networks Learn: Backpropagation

Forward Pass:



Backward Pass (aka Backpropagation):

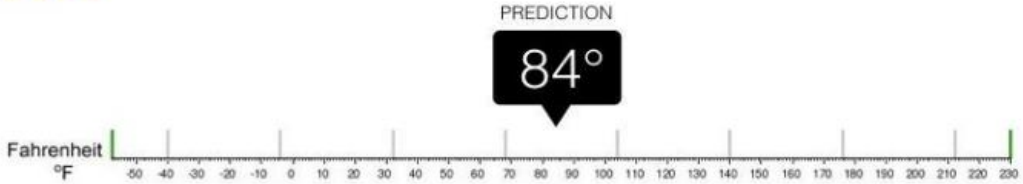


Adjust to Reduce Error

Regression vs Classification

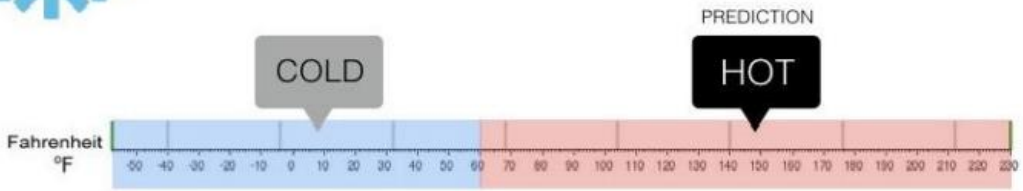
Regression

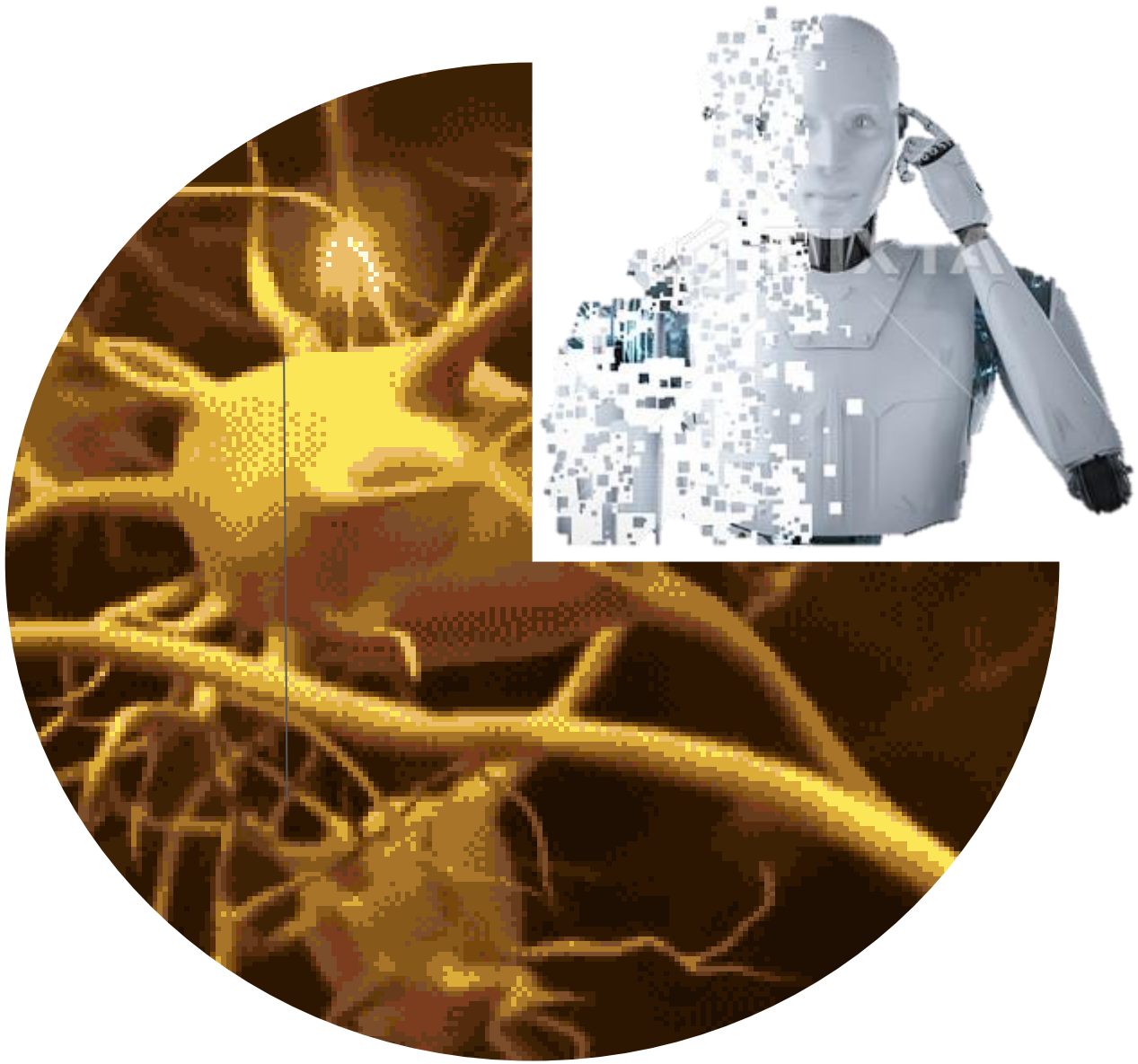
What is the temperature going to be tomorrow?



Classification

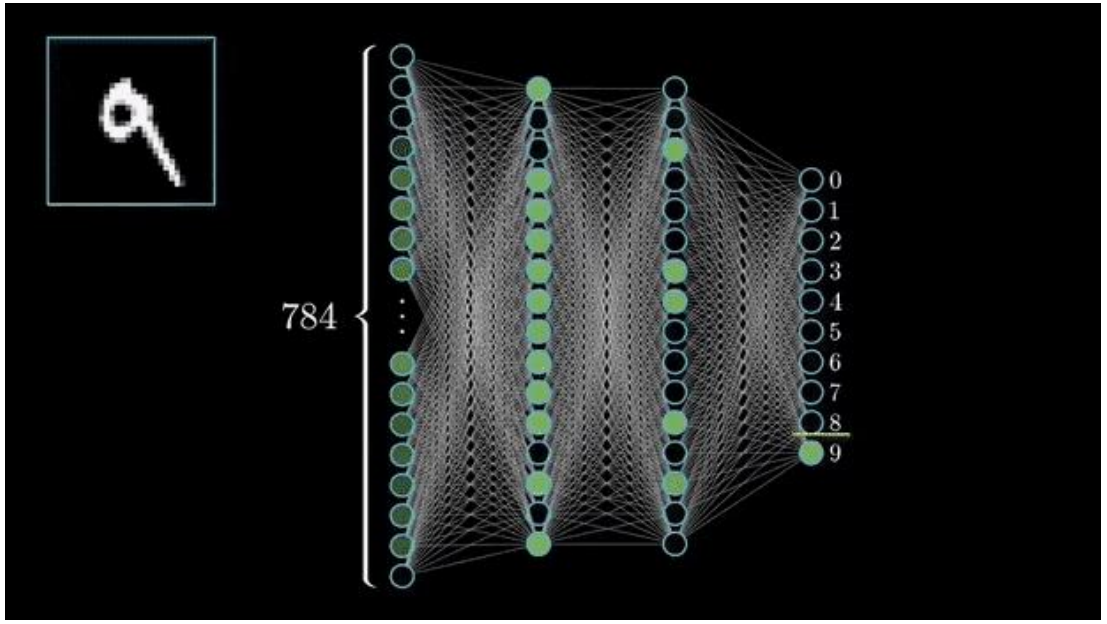
Will it be Cold or Hot tomorrow?

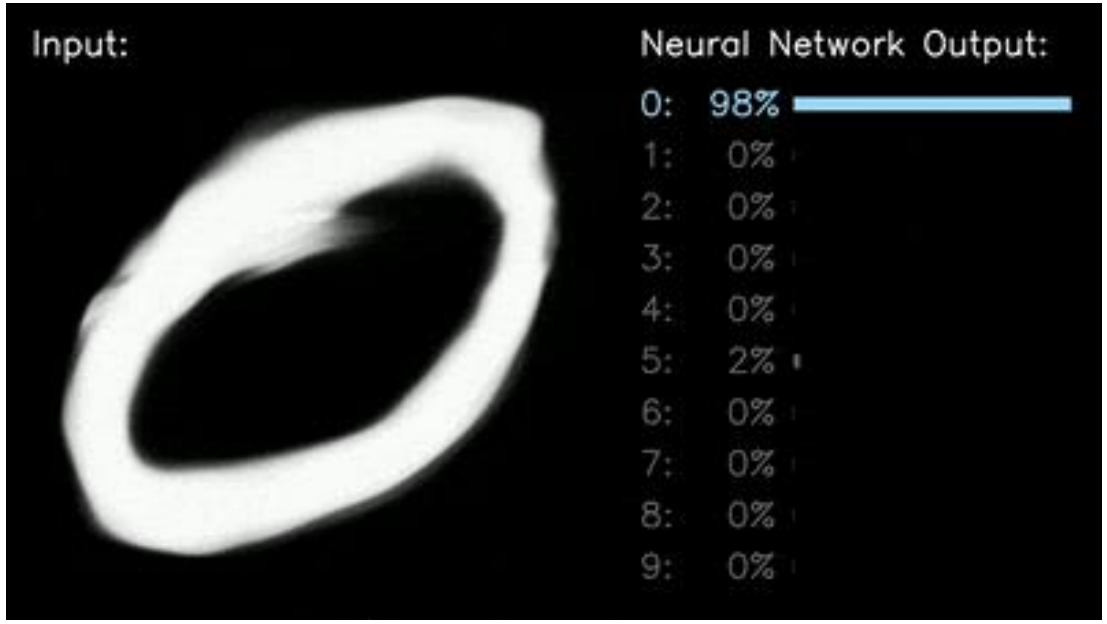




Deep Learning; Example

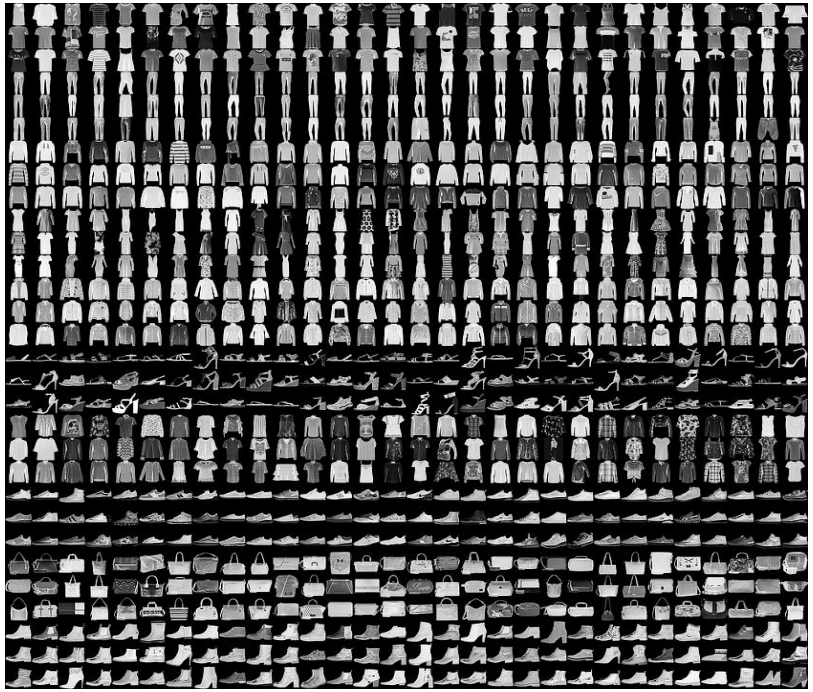
Digit Classification MNIST Dataset





https://colab.research.google.com/drive/12Go8c7bA2vFlZzAdLdpaUwpBP04QOKGA?usp=sharing

The Fashion MNIST Dataset



https://colab.research.google.com/github/lmoroney/mlday-tokyo/blob/master/Lab2-Computer-Vision.ipynb

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TERIMA KASIH

THANK YOU

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