

1 Standard defined tasks

- Image Classification

2 Important Ideas

2.1 Convolutional Neural Networks (CNN)

Yann LeCun 1998 - LeNet-5 was one of the first NN that utilized backpropagation using Supervised Learning

2.2 Deep Convolutional Neural Networks (CNN)

AlexNet 2012 - Image classifier on the ImageNet database. Built upon 1998 CNN work, scaled it up and run on GPU's

Major Improvements

- Reduced code complexity as it utilized homogeneous architectures
- no need to do complex step of feature extraction
- Made it easier to do Transfer Learning

Industry applications

- Face Recognition
- Self driving cars
- Image captioning?
- building block in Reinforcement Learning computations

3 Why vision is important?

- A lot of major breakthroughs in ML have been realized in this field
- Visual perception is a very important ability for robotics

4 Important Tools

- OpenCV
- Keras
- Tensorflow

5 References

- Andrej Karpathy - "<https://www.youtube.com/watch?v=u6aEYuemt0M&t=524s>"