

The progress of computer vision

The first digital image scanner was invented

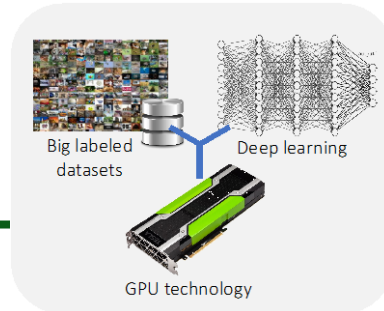
Connect a camera to a computer to have it describe what it sees

Neocognitron, the precursor of modern convolutional neural networks

Viola-Jones real-time face detector

Significant recent progress in the last decade

ImageNet top-5 error (%)



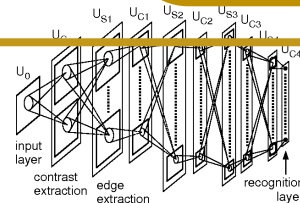
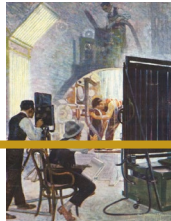
1957

1966

1979

2001

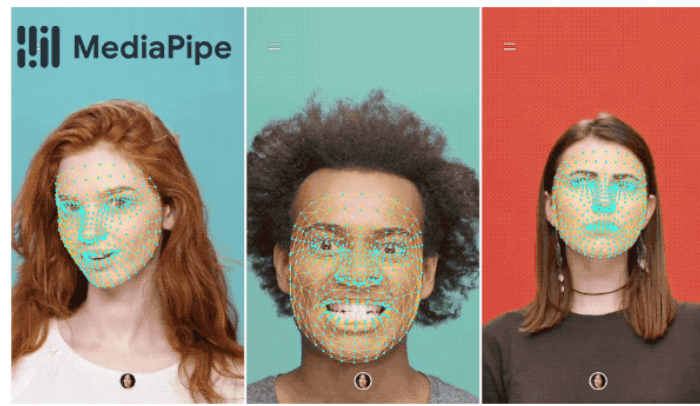
2010+



What kinds of things work best today? (just a sample!)

3 6 8 1 7 9 6 6 9 1
6 7 5 7 8 6 3 4 8 5
2 1 7 9 7 1 2 8 4 5
4 8 1 9 0 1 8 8 9 4

Optical character
recognition (OCR)



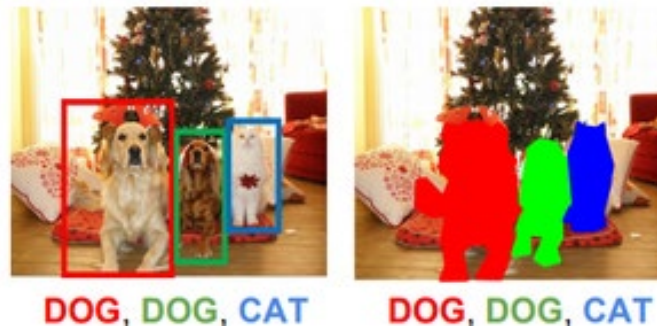
Face detection and
keypoint tracking



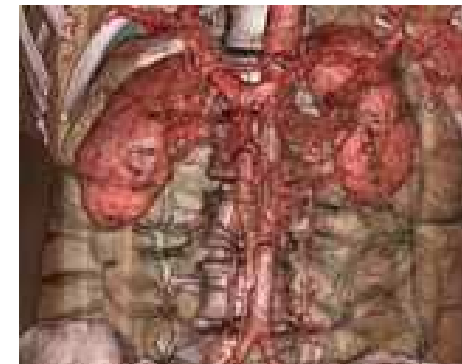
3D reconstruction of
scenes



Recognizing object
instances



Recognizing object
categories



Medical image
analysis



Vision-aided
navigation