Convolutional Neural Networks: Introduction

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Why AI in Computer Vision?

1. one picture worth a thousand words
2. large video and image collections

typical task: object recognition (identify objects and scenes)

Error Rate

ImageNet Challenge

IMAGENET

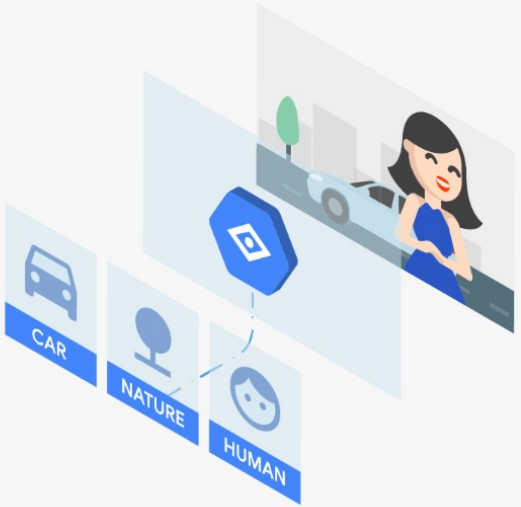
- 1,000 object classes (categories).
- Images:
  - 1.2 M train
  - 100k test.

4

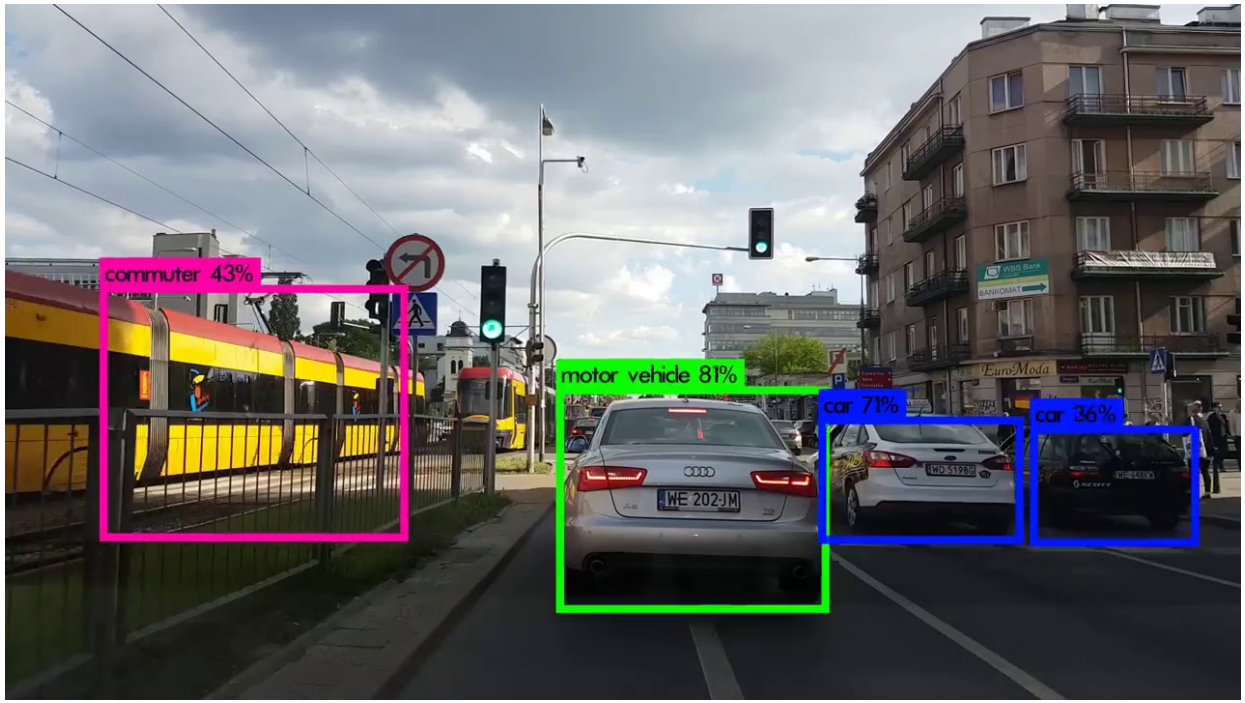
Powerful image analysis

Cloud Vision offers both pretrained models via an API and the ability to build custom models using AutoML Vision to provide flexibility depending on your use case.

Cloud Vision API enables developers to understand the content of an image by encapsulating powerful machine learning models in an easy-to-use REST API. It quickly classifies images into thousands of categories (such as, “sailboat”), detects individual objects and faces within images, and reads printed words contained within images. You can build metadata on your image catalog, moderate offensive content, or enable new marketing scenarios through image sentiment analysis.



Real-Time Object Detection



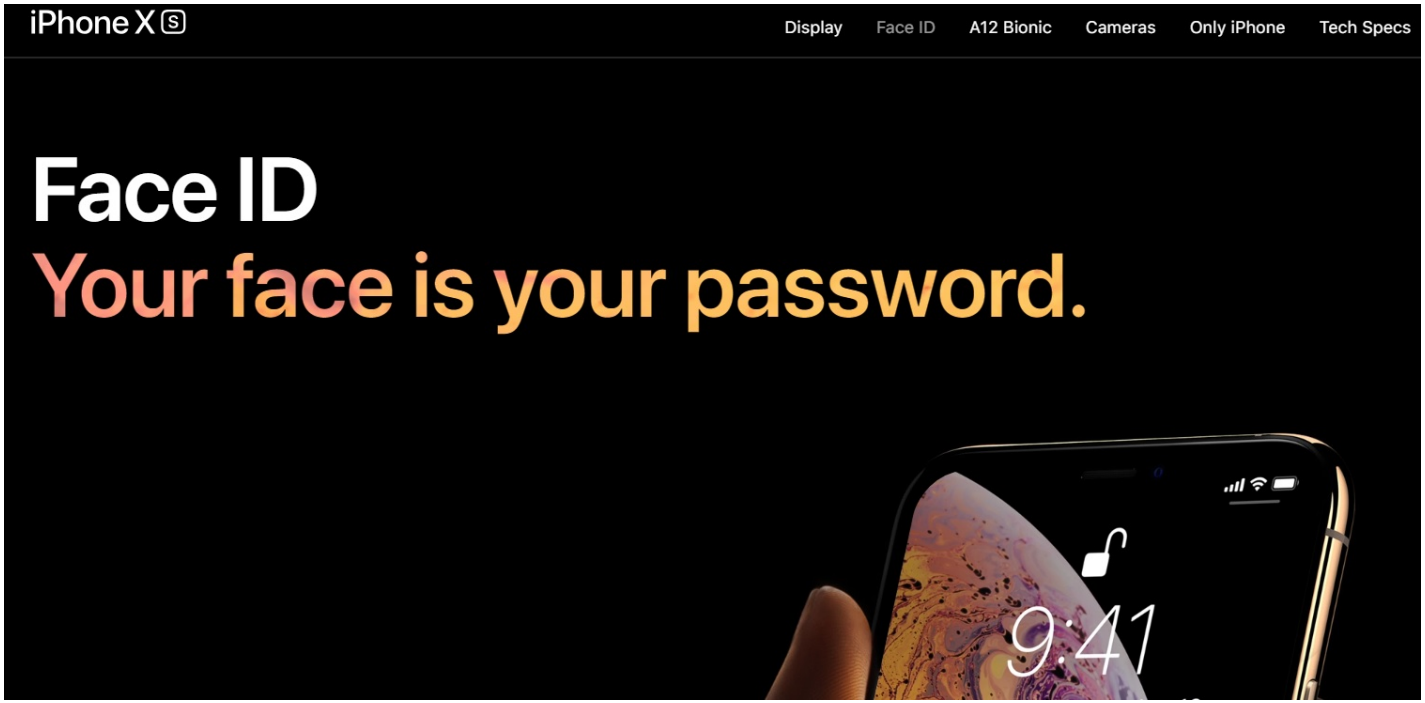
(demo)

Example: Self-Driving Trucks

One of 10 Breakthrough Technologies in 2017

(video)

Face Recognition



Example: Paying with Your Face

One of 10 Breakthrough Technologies in 2017

(link)

More Generally, Biometrics

(link)