

# Task0

2021年8月15日 19:52

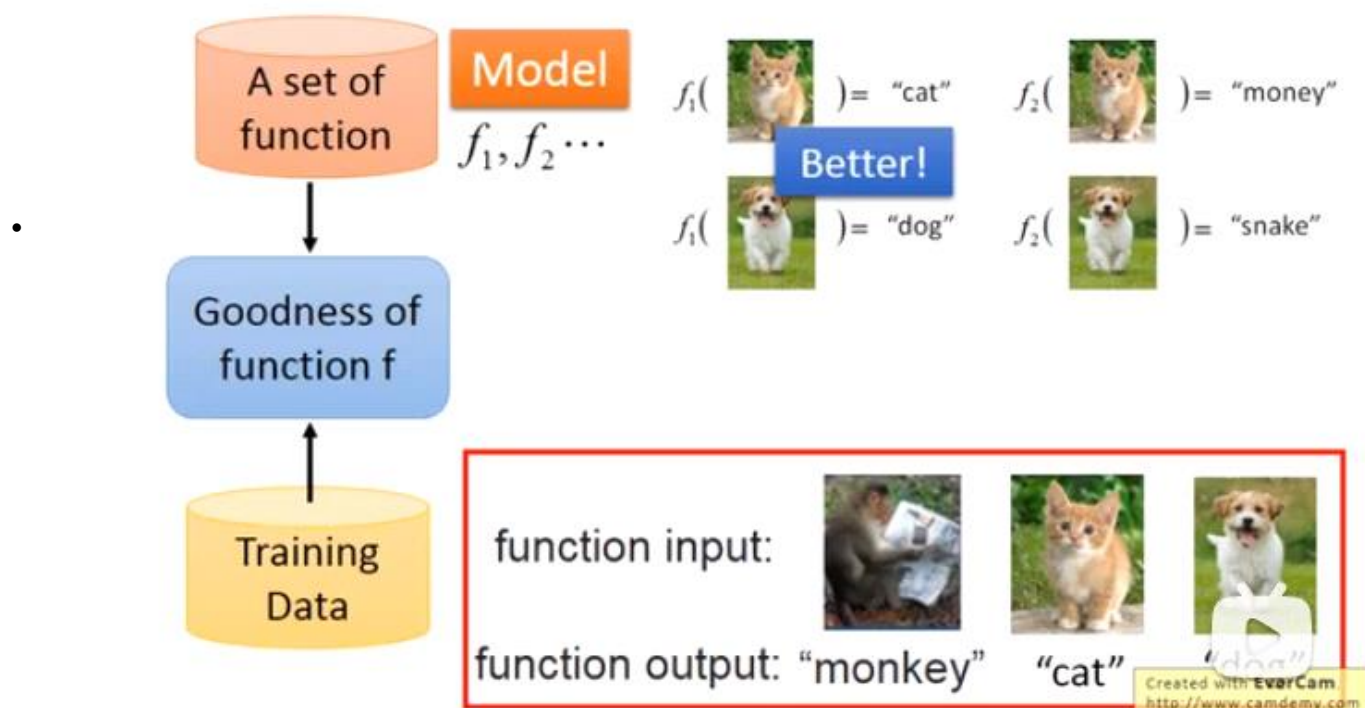
## P1 机器学习介绍

- ML introduction: Looking for a function from data, write a program for learning
- Include: Speech recognition; Image recognition; Playing go; Dialogue system...
- Framework

## Framework

### Image Recognition:

$$f(\text{image of a cat}) = \text{"cat"}$$

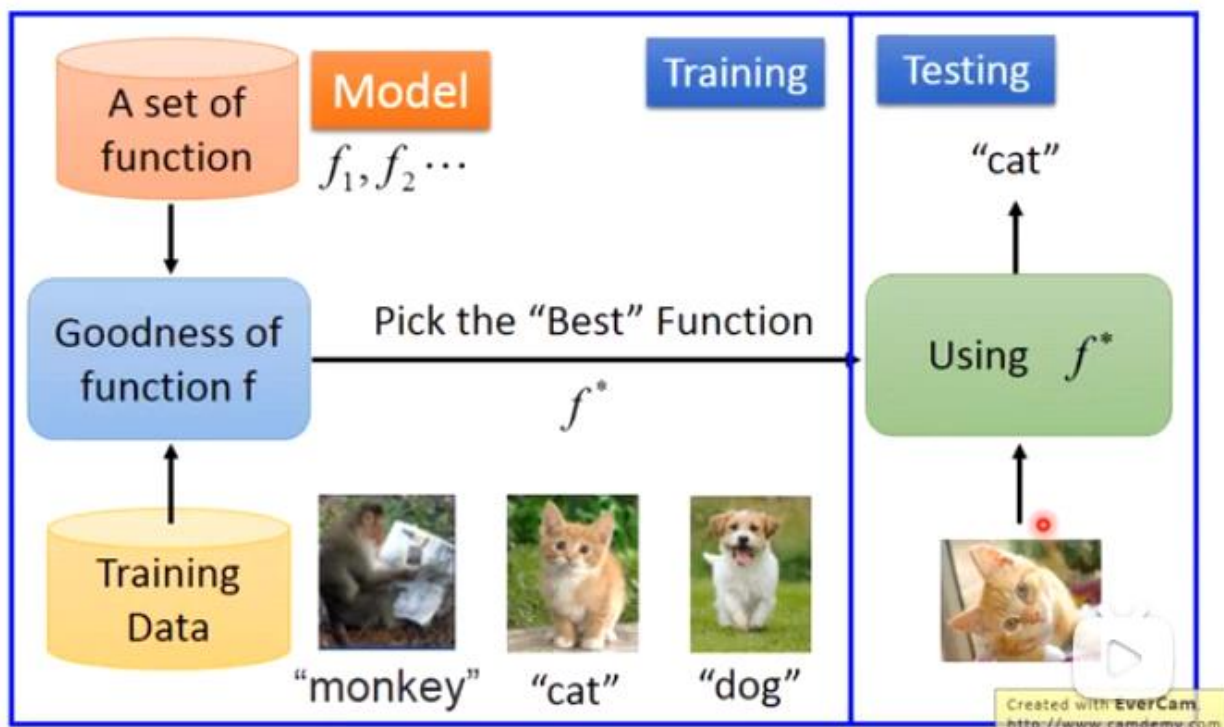


根据训练数据寻找最好的function，再将训练得到的function对新数据进行测试判别有效性

## Image Recognition:

# Framework

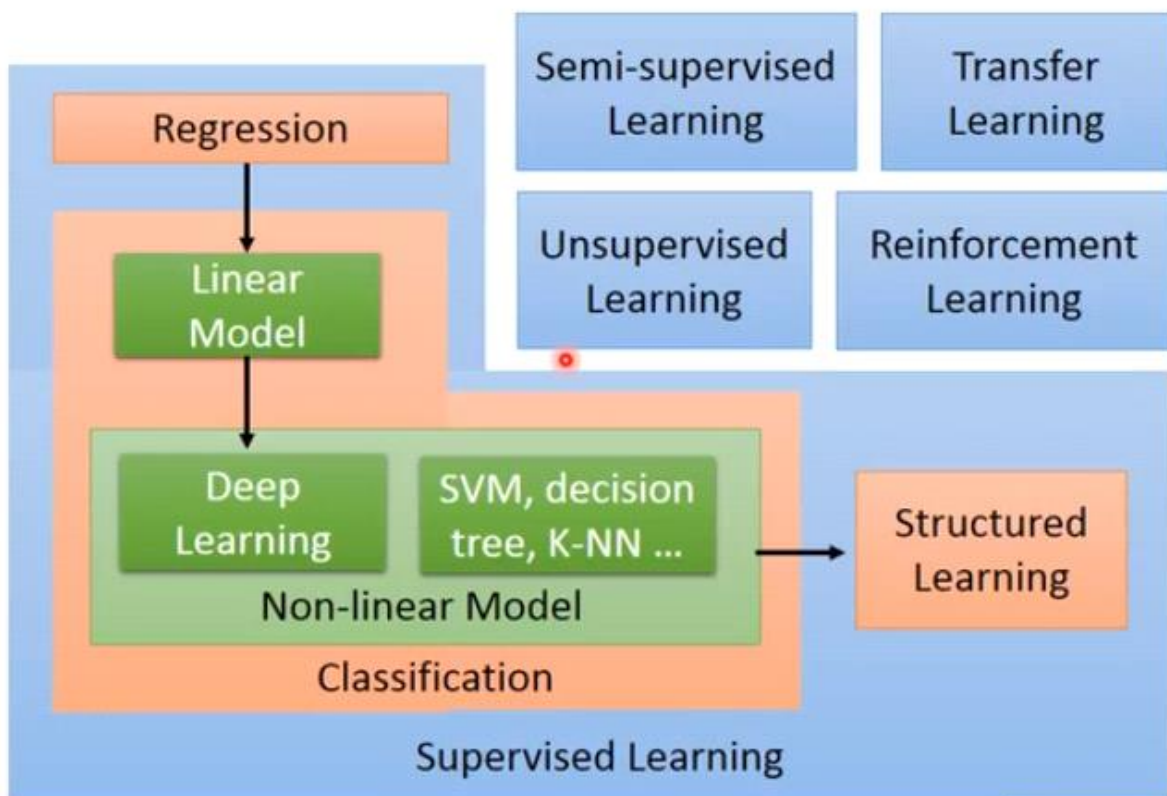
$$f(\text{Image of a cat}) = \text{"cat"}$$



- Learning map

## Learning Map

scenario task method



- regression: the output of the target function  $f$  is "scalar"(number)
- Classification: yes or no(binary); class a, class b...(multi-class)

- Structured learning: speech recognition; machine translation...
- Semi-supervised

# Semi-supervised Learning

For example, recognizing cats and dogs

- Labelled data



- Unlabeled data



(Images of cats and dogs)

- Transfer learning: some of data do not have label
- Unsupervised: no label
- Reinforcement learning: 通过反馈进行优化