LTAT.02.004 Machine Learning II

Introduction

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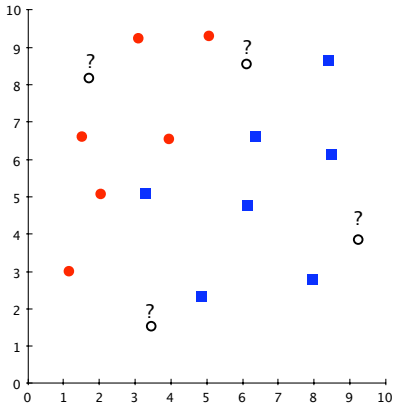
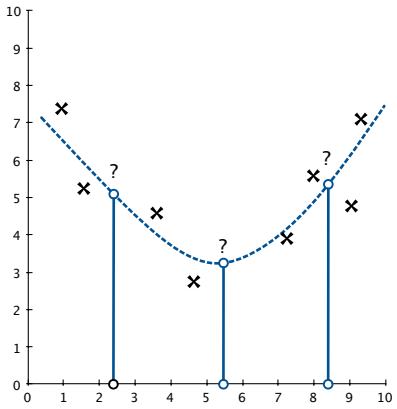
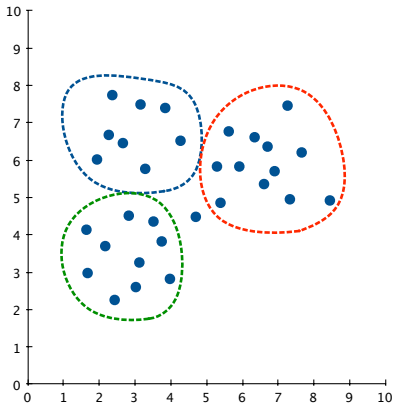
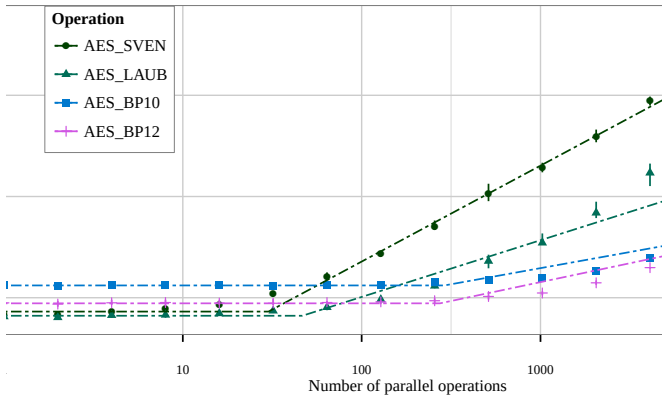
Four basic tasks in machine learning

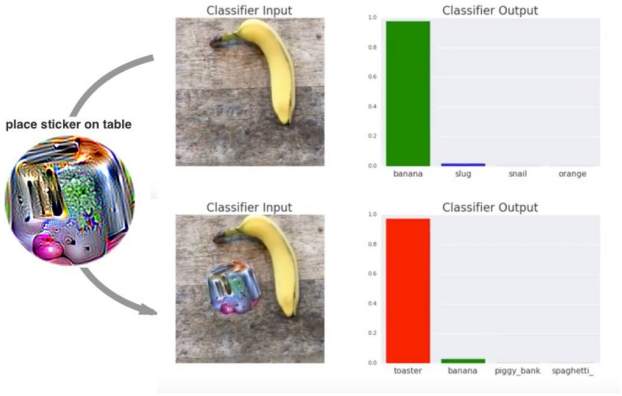


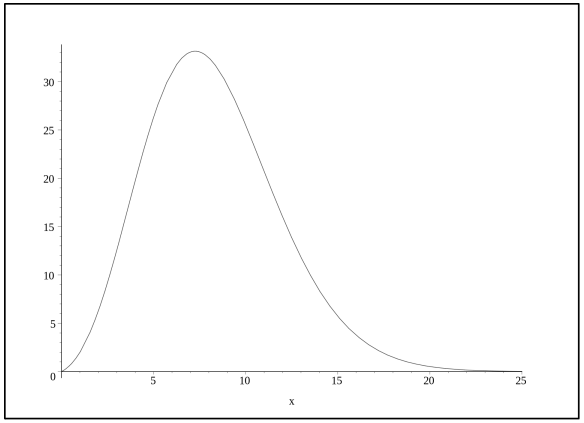




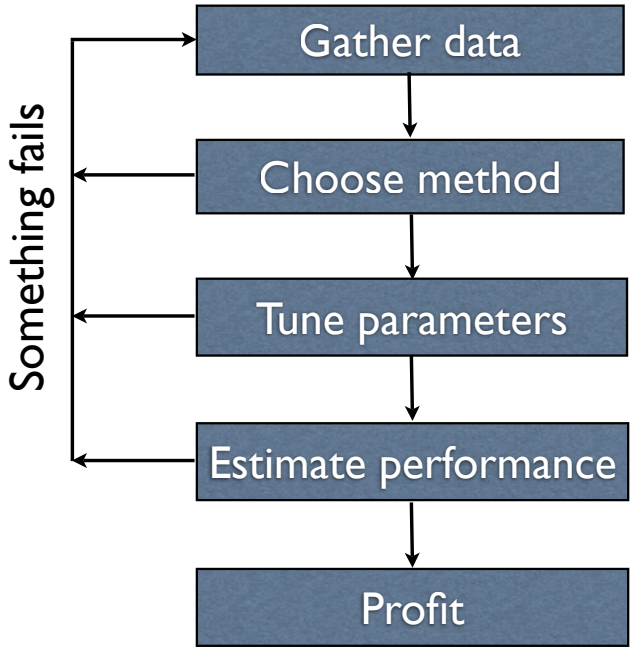
Four basic issues you have to solve







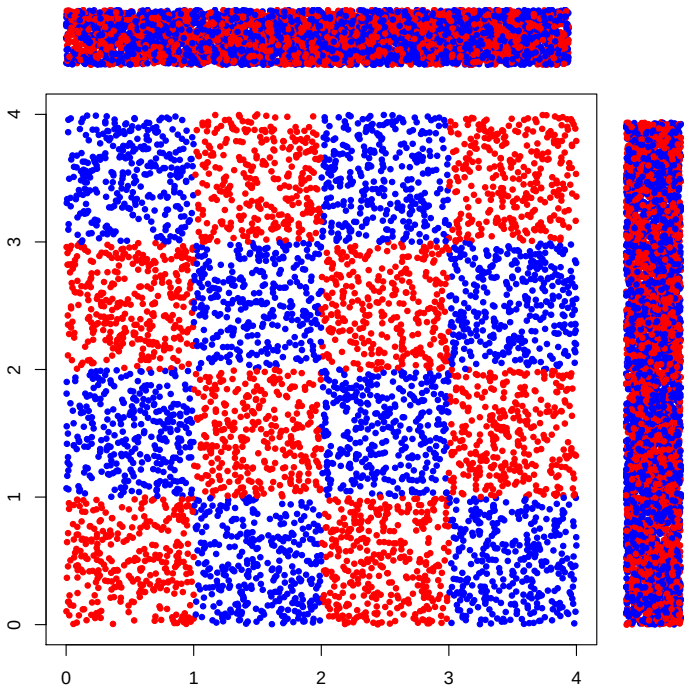
Main inference prodedure



Usually no machine learning method works on real data without tweaking

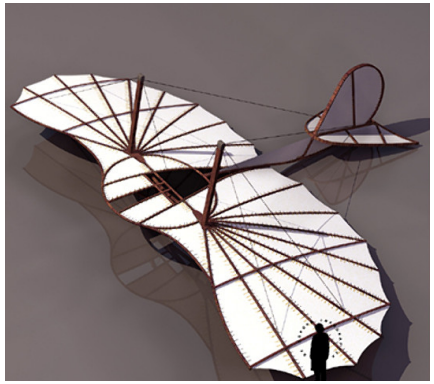
- ▷ The signal might be missing form the data
- ▷ The method uses wrong features for its predictions

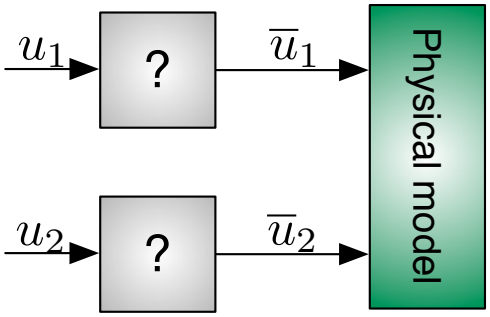
Features are more important than method



The signal is completely lost if we observe a single feature: x-coordinate or y-coordinate. By knowing both features the pattern is clearly visible.

Do not learn what you already know!





Sometimes we know the overall structure of the model

- ▷ In robotics the effect of actuators can be expressed directly
- ▷ Sometimes we know some governing rules form previous studies

In such cases, learning the entire model with machine learning is wasteful

- ▷ Locate the parts of the model that are undefined
- ▷ Use machine learning to find missing links