LTAT.02.004 Machine Learning II

Introduction

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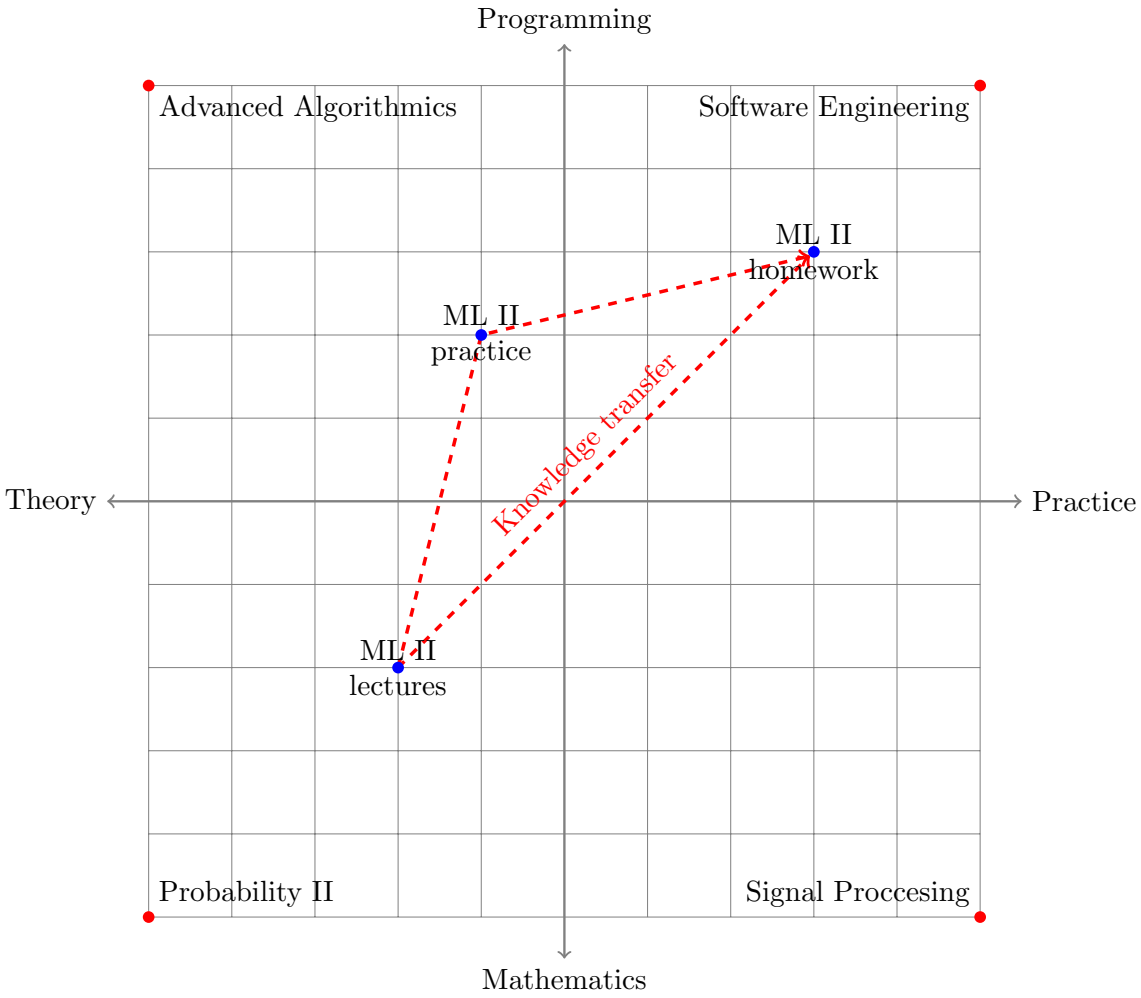
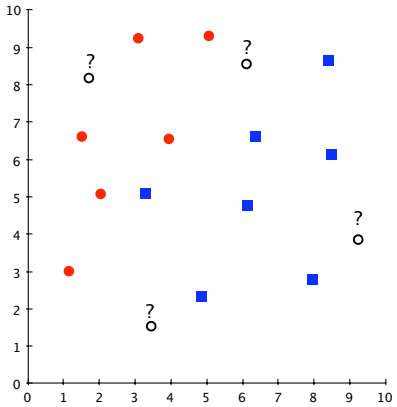
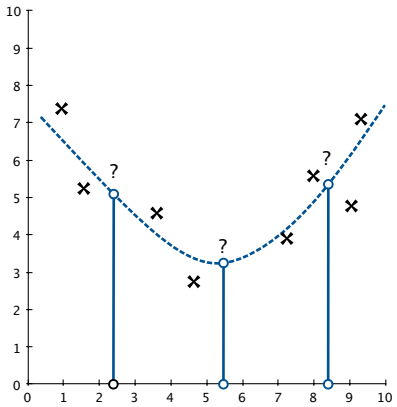
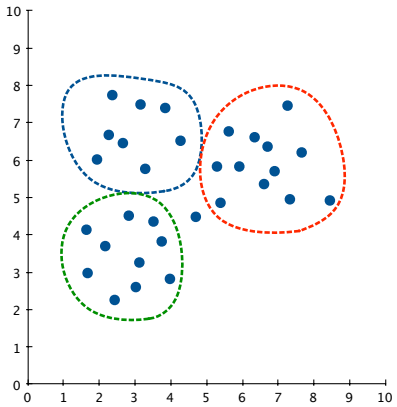
What is this course about?



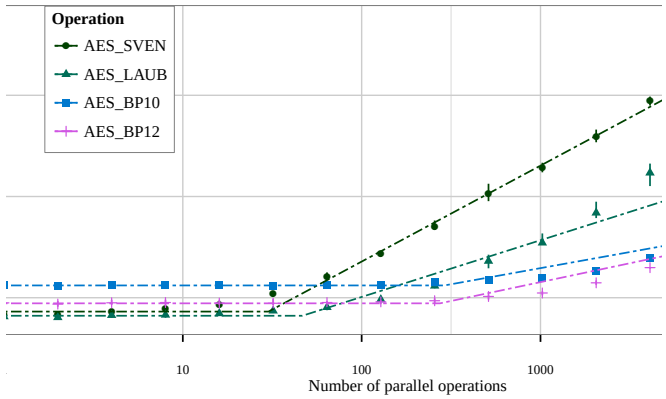
Four basic tasks in machine learning

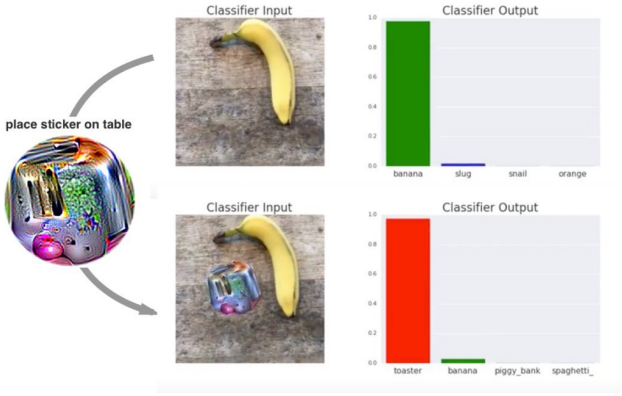


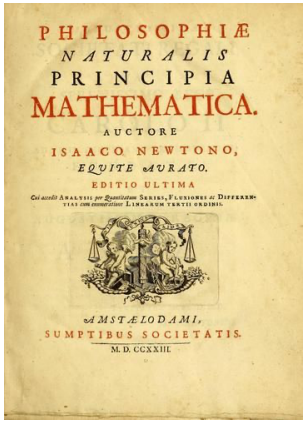


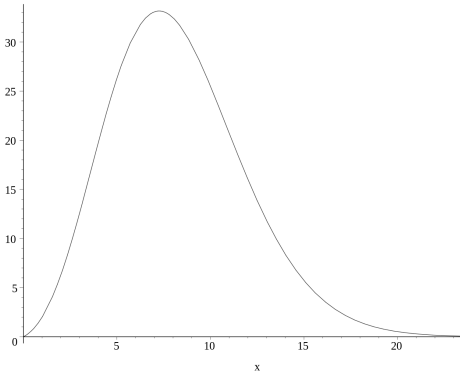


Basic issues you have to solve

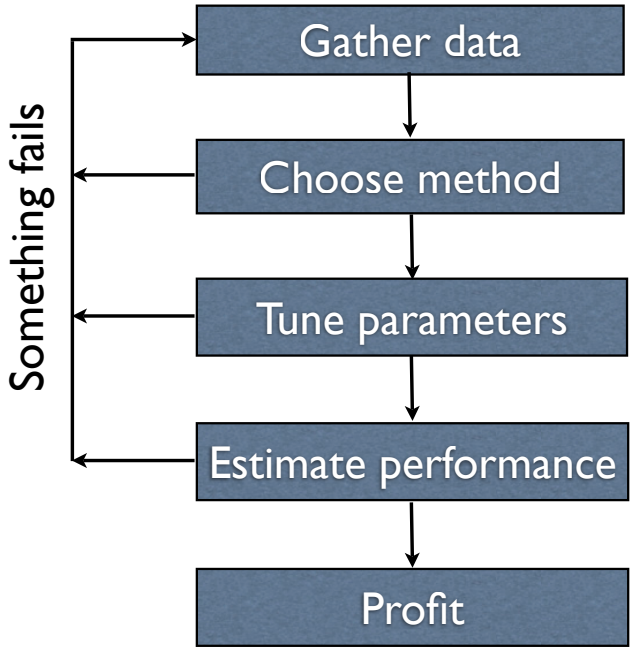








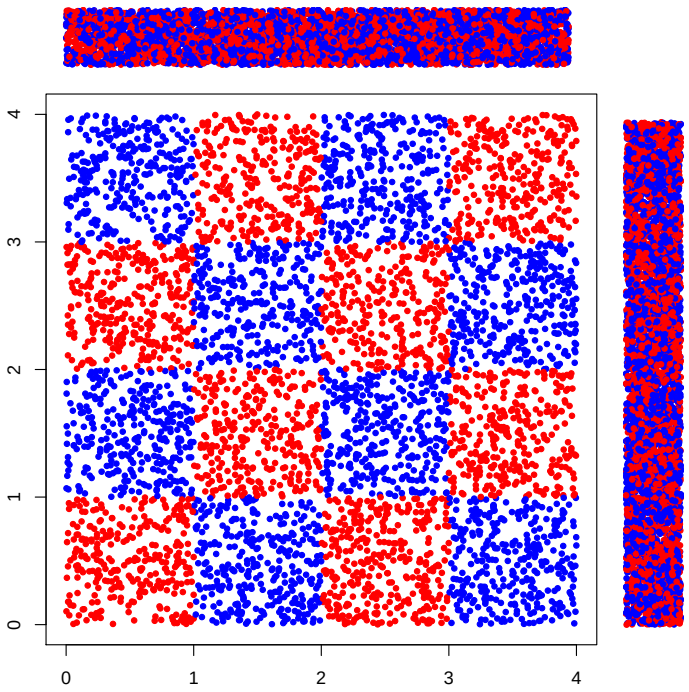
Main inference prodedure



Usually no machine learning method works on real data without tweaking

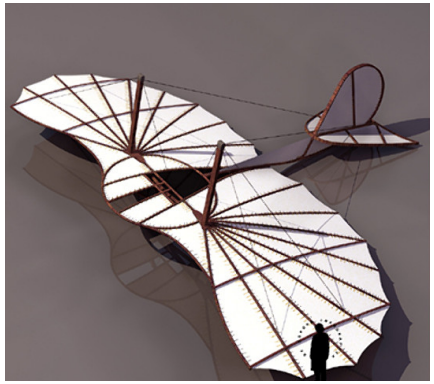
- ▷ The signal might be missing form the data
- ▷ The method uses wrong features for its predictions

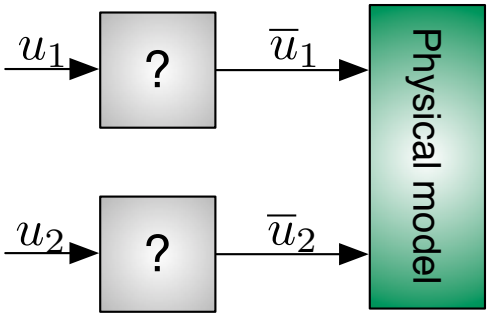
Features are more important than method



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