

# Learning

*Subtitle*

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# Abstract

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# Preface

# **Part I**

## **Introduction**

## **0.1 Motivation**

Something about machine learning

## **0.2 Goals?**

What we want to achieve

# Chapter 1

## Background

### 1.1 Why is it important?

### 1.2 Where are the challenges?

### 1.3 What am I going to solve, and why?

### 1.4 Related work

### 1.5 Machine Learning

Testing a cite:

*A computer program is said to learn from experience  $E$  with respect to some class of tasks  $T$  and performance measure  $P$ , if its performance at tasks in  $T$ , as measured by  $P$ , improves with the experience  $E$ .* Mitchell 1997

#### 1.5.1 Tasks

- Classification
- regression
- transcription/translation
- de-noising / finding missing inputs

#### 1.5.2 The rate of success

What is a good result, how to measure?

FP,TN,FN,TP

### 1.5.3 supervised vs unsupervised

What it means to be S/US.

Something about the kind of experience allowed during the learning process.

## 1.6 Unsupervised

noe med å dele i grupper? Experience the dataset containing many features, and finds useful properties of the structures. ***Unsupervised learning algorithms** experience a dataset containing many features, then learn useful properties of the structure of this dataset. In the context of deep learning, we usually want to learn the entire probability distribution that generated a dataset, whether explicitly, as in density estimation, or implicitly, for tasks like synthesis or denoising. Some other unsupervised learning algorithms perform other roles, like clustering, which consists of dividing the dataset into clusters of similar examples.* Goodfellow, Bengio, and Courville 2016

### 1.6.1 Approaches to unsupervised learning

look at the subsection 1.5.1 to see what applies to the unsupervised.

### 1.6.2 Deep Unsupervised learning

### 1.6.3 more

# **Part II**

## **The project**

## **Chapter 2**

### **Planning the project**

# **Part III**

## **Conclusion**



# **Chapter 3**

## **Results**

# Bibliography

Goodfellow, Ian, Yoshua Bengio, and Aaron Courville (2016). *Deep Learning*. <http://www.deeplearningbook.org>. MIT Press.

Mitchell, Tom M (1997). *Machine learning*. eng. New York.