

Machine Learning and Data Mining

Notes on the algorithms and models
employed



Jordi París López

On these notes

Machine learning has become in the latest decades one of the main topics of interest not only for computer science and research, but also for predictive calculations in finance, medicine and technology, between many others. The idea of this technique is to teach computers how to learn automatically how to handle data through algorithms. This discipline is currently a hot topic in computer science and day by day new applications in the private sector arise. Hence, it is recommended for many scientists to keep up to date with new achievements and new algorithms developed.

The main goal of these notes is to provide an introduction to Machine learning and to analyse the algorithms treated. Furthermore, an implementation of the routines will be implemented in the form of C++ codes separately.

These notes follow, at first, the course on Machine Learning offered in Coursera by Stanford University. Through these pages, basic and mid-level knowledge of algebra will be taken for granted and some mathematical statements will be proven.



Imperfect Cell: *The computer told me one more thing: [...] I will be the most powerful being who has ever lived.*

Perfect Cell: *At last. All that I have ever imagined is now mine. I have become what no other could ever achieve. I am perfect.*

Cell (Dragon Ball), the first biomechanical android to become the perfect being, before and after having followed the instructions of a supercomputer that gathered data for several decades and created it using optimised algorithms from Machine Learning ... most probably.

Contents

1	Introduction	4
2	Theoretical Framework	5

Chapter 1

Introduction

Chapter 2

Theoretical Framework