

INTRODUCTION

GRADING SCHEME
EXPECTATION

Lecturer: Sahely Bhadra, IITPKD

EXPECTATION

- Objective of this course
 - ▶ Enable you to apply machine learning techniques to real problems
 - ▶ Basic theory
 - ▶ Usage of ML packages
 - ▶ Prepare you for advanced coursework/research in machine learning and related fields
- Does it match with your expectation?

GRADING SCHEME

- Final Exam 40%
- Mid-sem Exam 15% + 15%
- Assignment 30%
 - ▶ 2 Programming
 - ▶ 4 Homework

AI - ML - DL

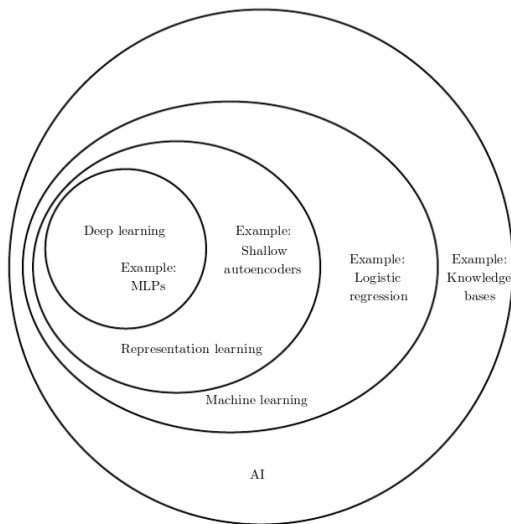


Figure 1.4: A Venn diagram showing how deep learning is a kind of representation learning, which is in turn a kind of machine learning, which is used for many but not all approaches to AI. Each section of the Venn diagram includes an example of an AI technology.

AI - ML - DL

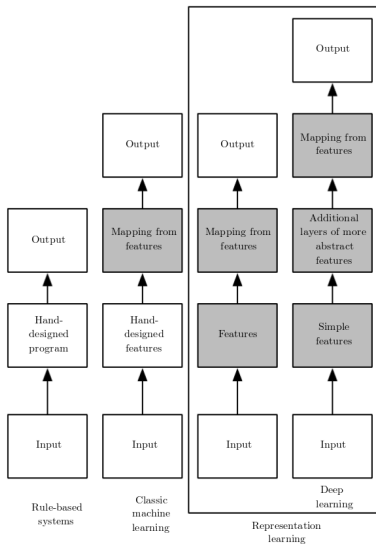


Figure 1.5: Flowcharts showing how the different parts of an AI system relate to each other within different AI disciplines. Shaded boxes indicate components that are able to learn from data.

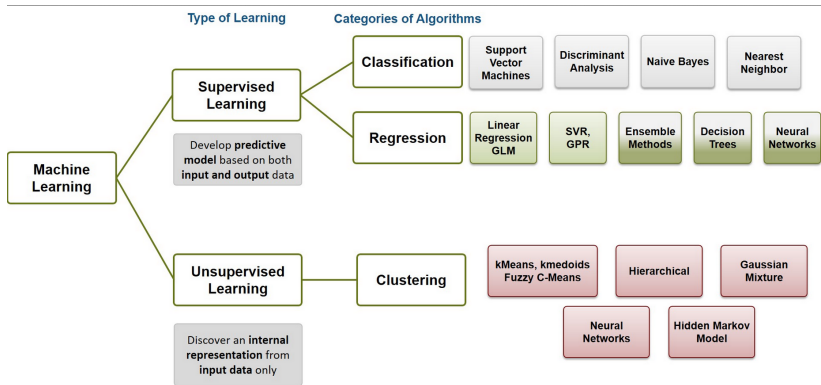
MACHINE LEARNING

- 1959, Arthur Samuel
 - ▶ Field of study that gives computers the ability to learn without being explicitly programmed.
- 1998, Tom Mitchell
 - ▶ A computer program is set to learn from an experience E with respect to some task T and some performance measure P if its performance on T as measured by P improves with experience E .

WHAT DO YOU KNOW?

- 5 applications of ML
- Applications where hard to apply ML

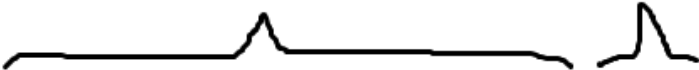
TYPES OF ML



SUPERVISED LEARNING

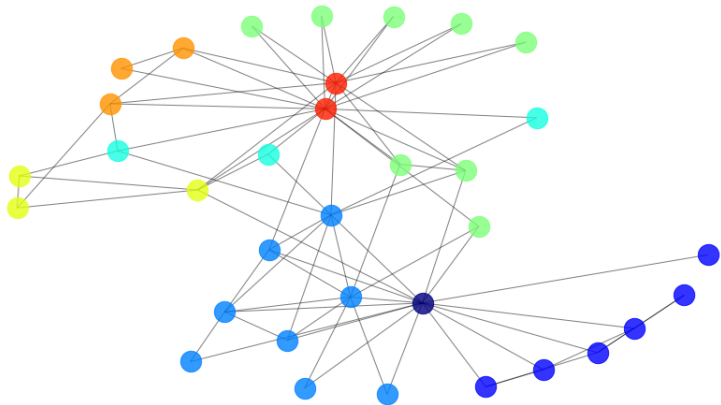
Predictors/Attributes

Target

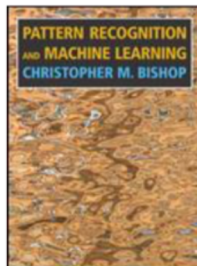
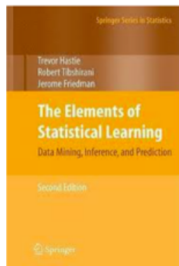


Outlook	Temperature	Humidity	Windy	Play Tennis
Overcast	Hot	High	FALSE	Yes
Overcast	Cool	Normal	TRUE	Yes
Overcast	Mild	High	TRUE	Yes
Overcast	Hot	Normal	FALSE	Yes
Rainy	Cool	Normal	FALSE	Yes
Rainy	Mild	Normal	TRUE	Yes
Rainy	Hot	High	FALSE	No
Rainy	Hot	High	TRUE	No
Rainy	Mild	High	FALSE	No
Sunny	Mild	High	FALSE	Yes
Sunny	Cool	Normal	FALSE	Yes
Sunny	Mild	Normal	FALSE	Yes
Sunny	Cool	Normal	TRUE	No
Sunny	Mild	High	TRUE	No

UNSUPERVISED LEARNING



Book



CONCLUDE

Homework:

- Bishops 1.2 (1.2.1, 1.2.2, 1.2.3, 1.2.4) and 2.1,2.2,2.3

Next class : Linear Algebra (link to the study material is available in moodle)