

Unit No. 1

Machine Learning Basics

Lecture No. 02

Outlines

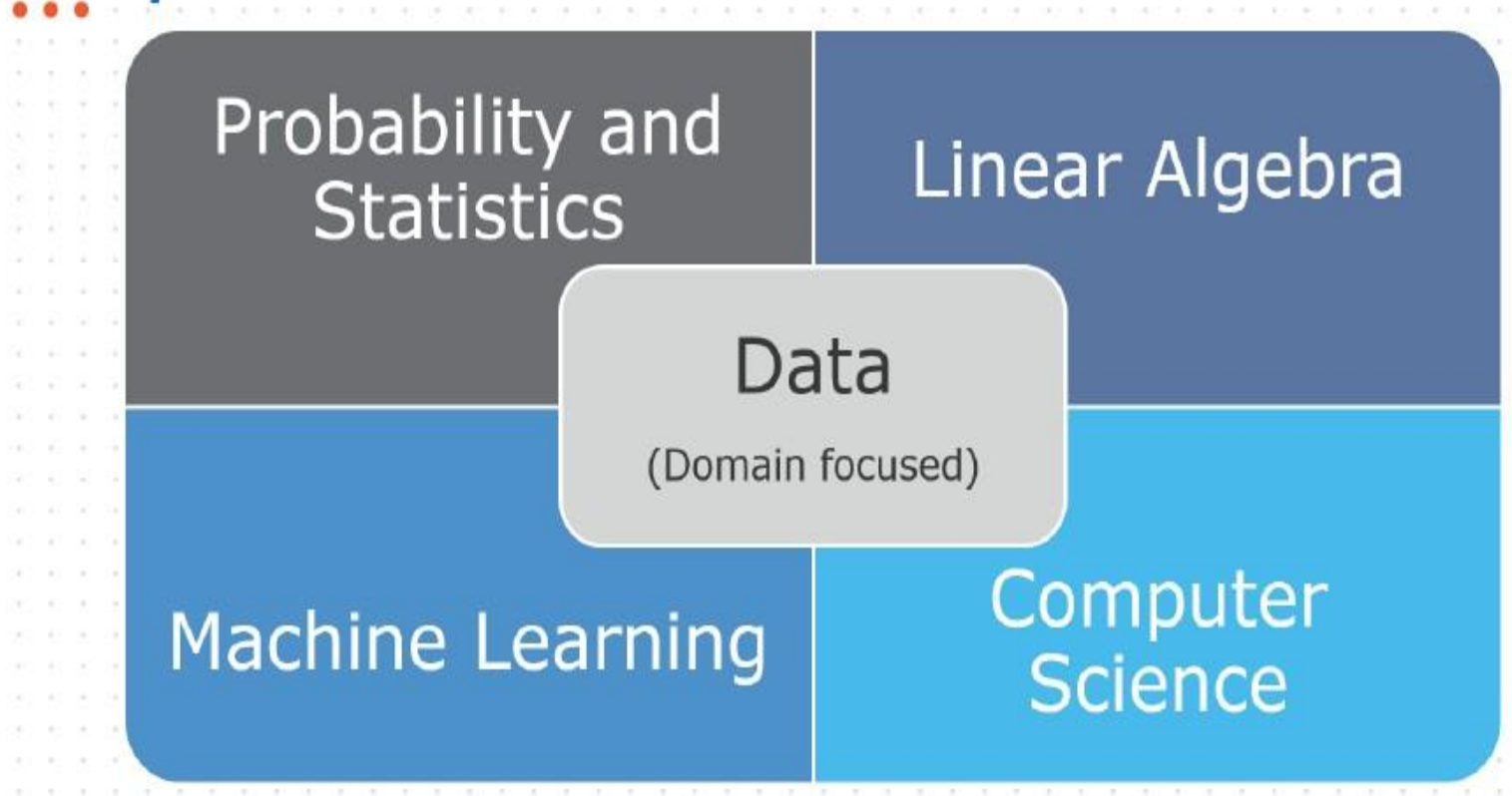
- **Introduction**
- **World of ML**
- **Why ML is the Future**
- **References**

INTRODUCTION

- Data Science is an interdisciplinary field about processes and systems to extract knowledge or insights from data in various forms, either structured or unstructured, which is a continuation of some of the data analysis fields such as statistics, data mining, and analytics. (Ref. Wikipedia)
- Data Science is the empirical synthesis of actionable knowledge from raw data through the complete data lifecycle process. (Ref. NIST - The National Institute of Standards and Technology)
- Data Science, a cross-functional discipline, is about scientific exploration of data to extract meaning or insight, and the construction of software systems to utilize such insights in a business or social context. (Ref. Hortonworks)

INTRODUCTION

Components of Data Science



INTRODUCTION

Digital Data

Structured data

Data which is organized and structured in form of rows and columns, and adheres to a pre-defined schema is known as structured data.
e.g. Microsoft Excel, RDBMS

Semi-structured data

Data that does not conform to any data model but has a structure of its own is known as semi-structured data.
e.g. XML, HTML, Email

Un-structured data

Data that does not conform to any data model, is known as unstructured data.
e.g. Satellite Images, Social Media Data, Scientific Data

The World of ML

The World Of Machine Learning



Over the past few decades, we have altered the way the world lives with path breaking innovations. By using the extensive capabilities offered by technology, we have completely revolutionized numerous experiences that human beings go through round the clock.

Let us take a look at a few examples for the same.

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Self-driven cars

We have built cars that can take anybody from one place to the other with no need for any human intervention.

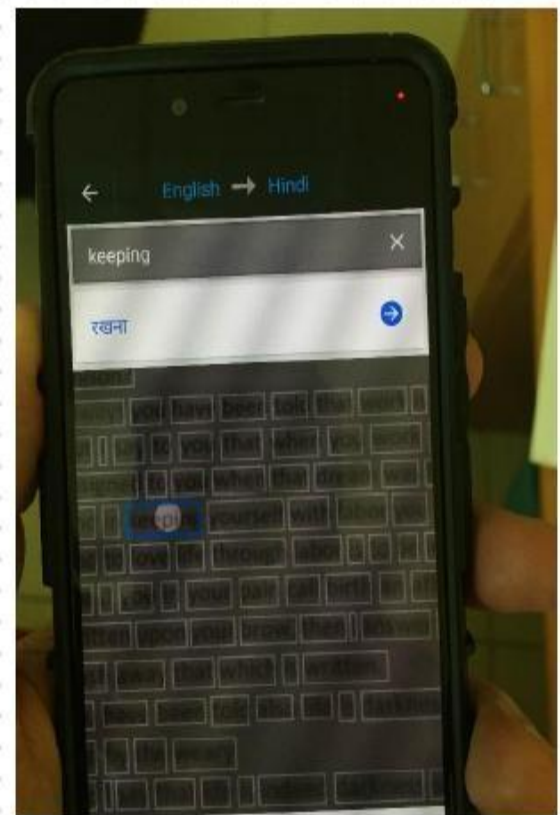


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Translate Apps

We have built applications that can help us communicate with people in any language.



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Amazon Go

A physical store that Amazon is setting up in Washington that eliminates the need for registers while going through a commonplace shopping experience.



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Can You Answer?



- How does a self-driving car recognize whether the object in front of it is a Human being or another vehicle?
- How can Google translate interpret both handwritten as well as printed text accurately?
- How does Amazon Go identify which shopper has picked which particular product from the store?
- How does Google News group related news items together?

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Machine Learning



The answer to these questions is using Machine Learning

The examples that we have witnessed until now is only a glimpse of what is possible with machine learning, there is a lot more to explore.

Thank You