



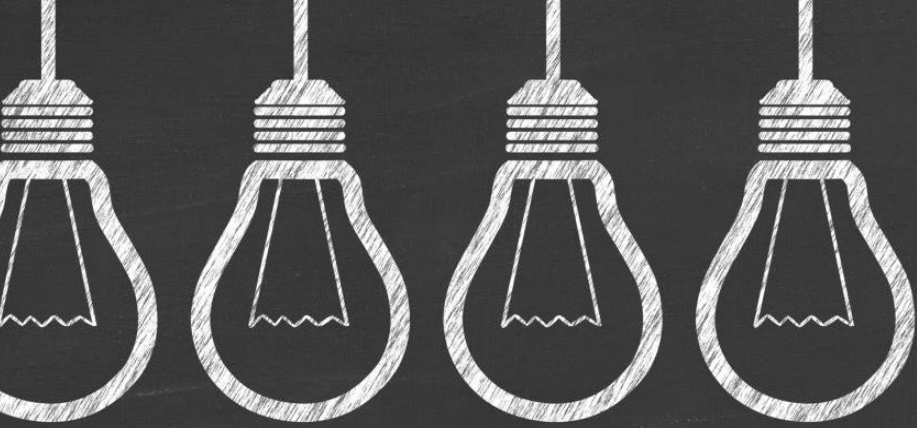
INTRODUCTION TO MACHINE LEARNING

IT'S JUST 0 AND 1 THAT THE MACHINE UNDERSTANDS

By M.Vineeth

ML Session,IGIT Robotics
Society

27 September 2020



About me

- LinkedIn Profile : <https://www.linkedin.com/in/vineeth-m-318695170/>
- Github Profile : <https://github.com/vineethm1627>
- Machine Learning and Deep Learning.
- Computer Vision is my favourite field.
- Currently exploring Model Deployment and Time Series Analysis.

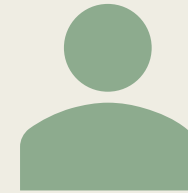
A Quick Shoutout !



IGIT Robotics
Society



Coffee Hours Club



Aashish Kumar

A Quick survey !



Please mention your branch name in the comments section !



Is B.Tech Computer Science a prerequisite for Machine Learning ?



Do you think Machine Learning is a latest trending technology ?



Is making Machines Learn easy or tough ?

Medium Articles :

<https://medium.com/@vinscoder1627>



M.Vineeth in Analytics Vidhya
May 26 · 4 min read



MACHINE LEARNING : An Overview (Part-1)

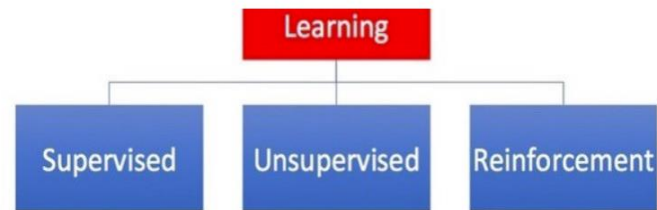
This is the visualization that comes to our mind when we say...



18



M.Vineeth in Analytics Vidhya
May 28 · 6 min read



MACHINE LEARNING: An Overview (Part-2)

This is a continuation of the Machine Learning Overview Series. If you haven't checked out...



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M.Vineeth in Analytics Vidhya
Jun 2 · 5 min read



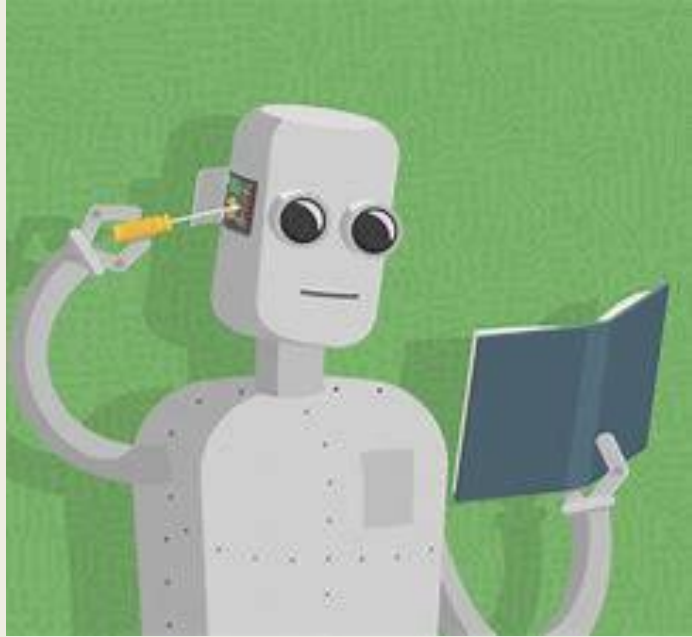
MACHINE LEARNING : An Overview (Part-3)

So far, we had an overview on what is Machine Learning, its practical use cases and how we...



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1 response



WHAT IS
MACHINE
LEARNING ?

TRADITIONAL PROGRAMMING

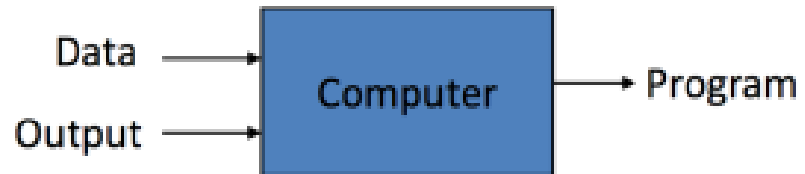
VS

MACHINE LEARNING

Traditional Programming

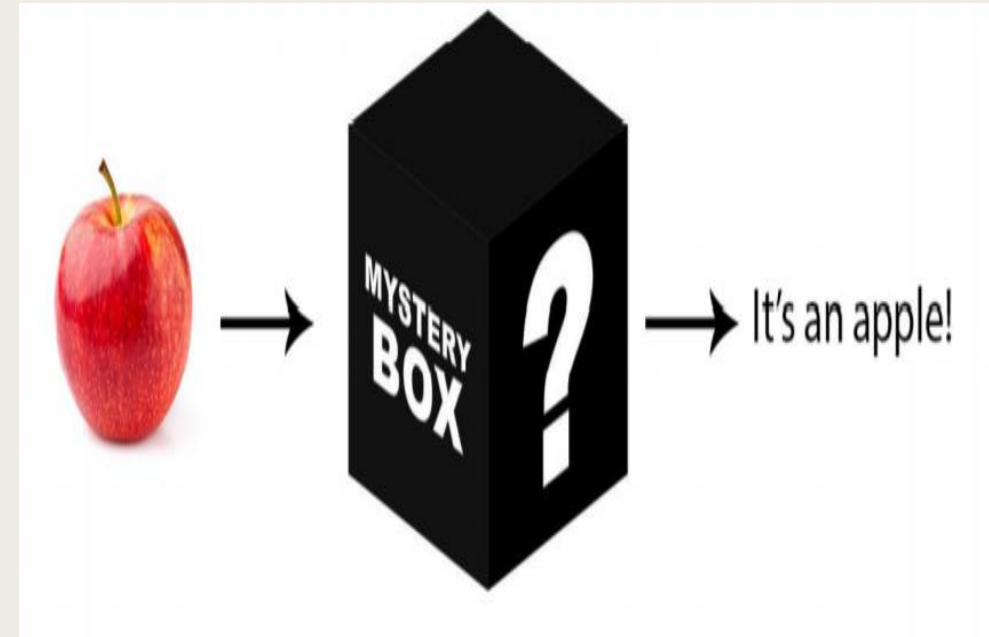


Machine Learning



For example : You want to Classify Apple

```
if (condition 1)
    statement 1;
else if (condition 2)
    statement 2;
else if (condition 3)
    statement 3;
else if (condition n)
    statement n;
else
    default statement;
statement x;
```



Traditional Programming

Messy Code

Lots of lines of Code

For Orange, entire code needs to be re-written from scratch [Time Waste]

Machine Learning

Clean understandable Code

Less than 50 lines of code

For orange, with some minor changes, the same code works well.

Machine Learning Vs Deep Learning

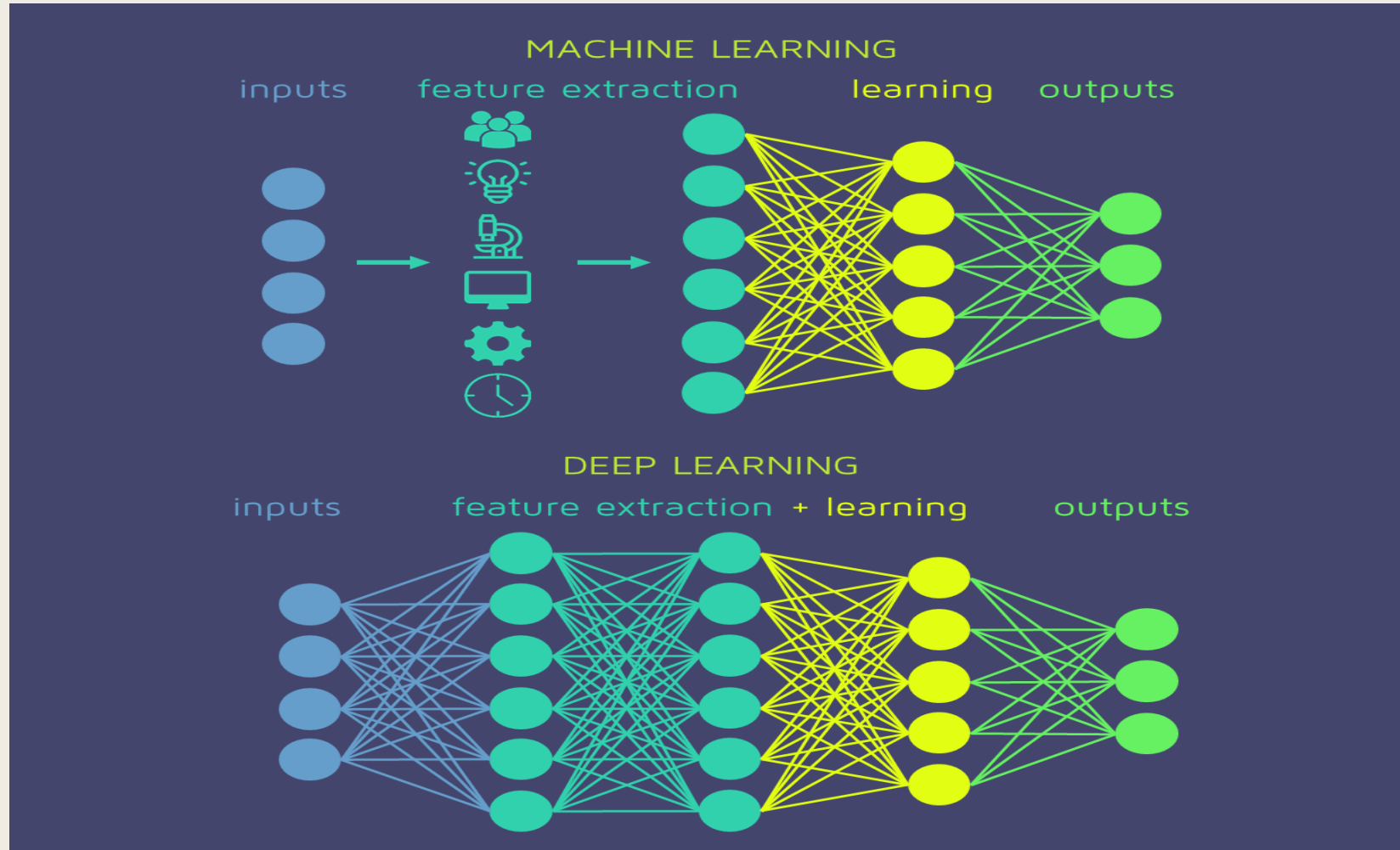


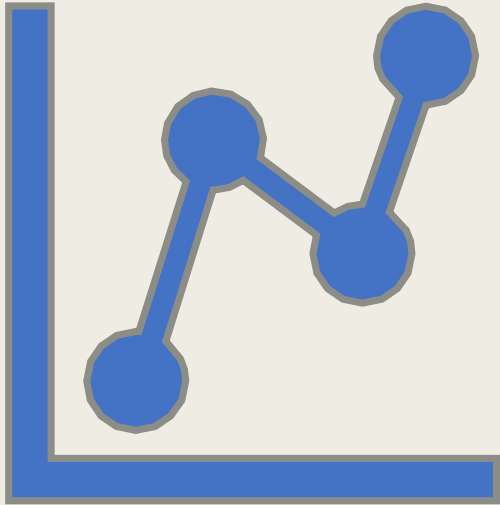
The child points at an object and says, ‘apple.’
The child’s parent immediately provide feedback:
‘Right’ or ‘No, that’s a ball’.

Slowly, after enough feedback, the child eventually
forms an internal mental model of how to label
different objects in the world.

A Deep Learning algorithm learns the underlying hidden patterns in the data by itself (without human supervision), combines them together, and builds much more efficient decision rules to make robust predictions.

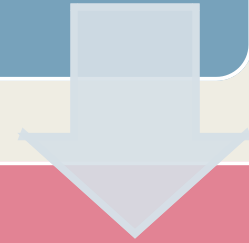
ML vs DL : The main difference





DATA IS THE ULTIMATE
FUEL FOR THE ML
ALGORITHMS.

Machine Learning works well for Structured Data where lots of features are given.

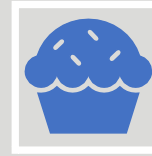


Deep Learning works well for Unstructured Data example : Image, Audio, Video etc.

Did we forget Data Science ?



Setting up Ingredients vs making a cake.



Given all the materials, prepare the cake :
Flavour, Shape, Taste, fluffiness etc.



Ordering the ingredients from Online Store for Home Delivery !

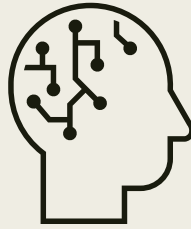


Gathering raw materials from root sources [Might take a few weeks to gather].

Types Of Machine Learning Algorithms



1. Supervised
Learning



2. Unsupervised
Learning



3. Reinforcement
Learning

Supervised Learning

- Supervised Learning makes use of “labelled data” ie. we provide both the input features and the output values to the model.
- For example : If i have to teach a model to classify between a dog and a cat, I need to provide the features of the cat as the input and also i need to label the output as cat and the same goes for dog.

Supervised Learning : Applications

- **1. Regression where we predict continuous values.**
- Examples include House price prediction or determining the number of Covid-19 cases over time.
- **2. Classification where we try to classify things**
- Examples include Classification of the X-ray images into Covid-19 positive or negative and face recognition where we try to recognize the name of the person just by having a picture of his face.
- Sounds cool right !

Unsupervised Learning

- Unsupervised learning as the name suggests is used when we have data but no particular output label or value as such.
- Well, let's suppose we have the data for the customers visiting a particular business site. We don't know on what basis to perform the classification task but what if i want the machine to figure out whether the customers can be grouped together based on common liking or behavior. That is exactly what happens in Customer Segmentation and Ad Targeting.

Reinforcement Learning

- Well, have you ever wondered that can we train a model to play your favorite game like “Subway Surfers” on its own.
 - Well, that is very much possible and Reinforcement Learning is all about training bots to perform the tasks in a new environment where it has never been before.
1. Self-navigating robots.
 2. Text Mining, generating summaries of text data.
 3. Healthcare, optimizing medication dosing



ENOUGH THEORY,
LET'S GET INTO THE CODING
PART.

Environment Setup and Software Requirements

▪

Pip, for installing the Python Libraries.

Anaconda [Popular Python Distribution]

Jupyter notebook

Google colab

Common Libraries used in ML



My Code Snippets

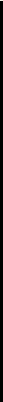
<https://gist.github.com/vineethm1627>

A close-up photograph of a chessboard with several dark wooden pieces standing and one light-colored piece lying on its side in the foreground. The background is softly blurred with warm, bokeh light effects. The text "LET'S LOOK INTO ONE END TO END USECASE" is overlaid in the center in a white, sans-serif font.

LET'S LOOK INTO ONE
END TO END USECASE



THE END



Thank you, hope
you liked this
session.

