
MACHINE LEARNING -
HOW AND WHAT IT DOES

AI VS ML

- AI stands for artificial intelligence, where intelligence is defined as the ability to acquire and apply knowledge.
- ML stands for machine learning, where learning is defined as the acquisition of knowledge or skills through experience or by being taught.
- One is still picture while other is video i.e. one is static while other is on the move.

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AI VS ML

ML guy would gather data, reformat/process it, choose (or build) appropriate algorithm and feed it the processed data and evaluate output provided by algorithm.

Repeat the process till less error prone output is becoming available.

- Guy builds a model and trains it regularly to make it better
- Human driven model optimization

On the other hand, AI guy would provide sources of data to a program who would process on its own, choose algorithm on its own, post process on its own till it solves the problem at hand.

- Machine finds/builds appropriate model and upgrades it based on new data that it is finding has changed i.e. machine adapts itself to modified or new sources of data in order to provide optimum solution.
- Machine driven unattended model optimization

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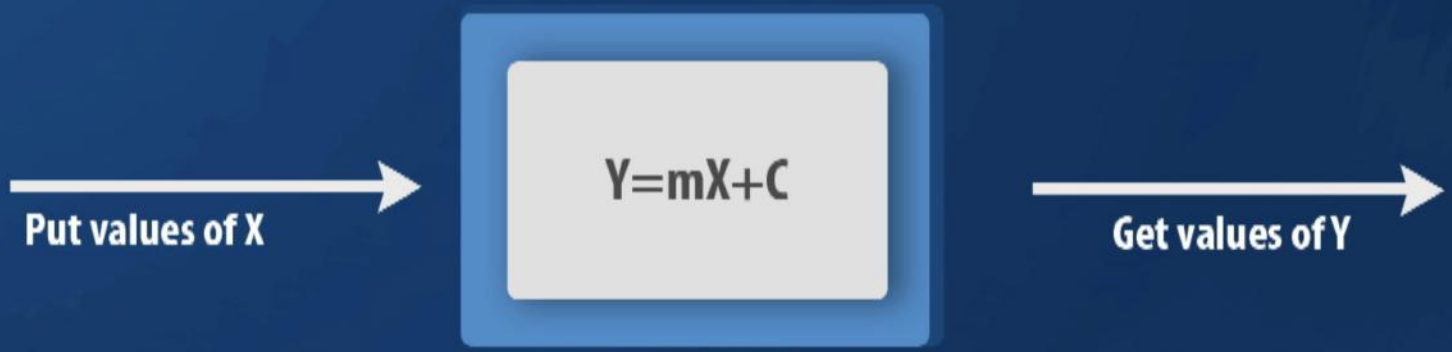
ML - HOW AND WHAT IT DOES

- Let's write a computer program in any language so that it solves f(X) where function definition is mX+C i.e.

  f(X) or Y = mX+C



- Above Program solves a predetermined equation as represented by f(X).

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ML – HOW AND WHAT IT DOES

- In ML, f(X) is not known a prior. However, lots of X and the corresponding Ys are known though.
- These sample set is utilized as input to ML Program.

- Above Program suggests f(X) that fits existing set of X and Y values in a closest possible way.

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ML – HOW AND WHAT IT DOES

- This means, program (aka machine) learned to solve equation for given set of X & Ys.
  - In other words, program learned to understand relationship between X and Y.
  - In yet another words, algorithms became wiser by incorporating experience (i.e. data).
- This also means, I could use just *identified* f(X) to understand Y for any future values of X.
  - It is like saying machine learned to predict.

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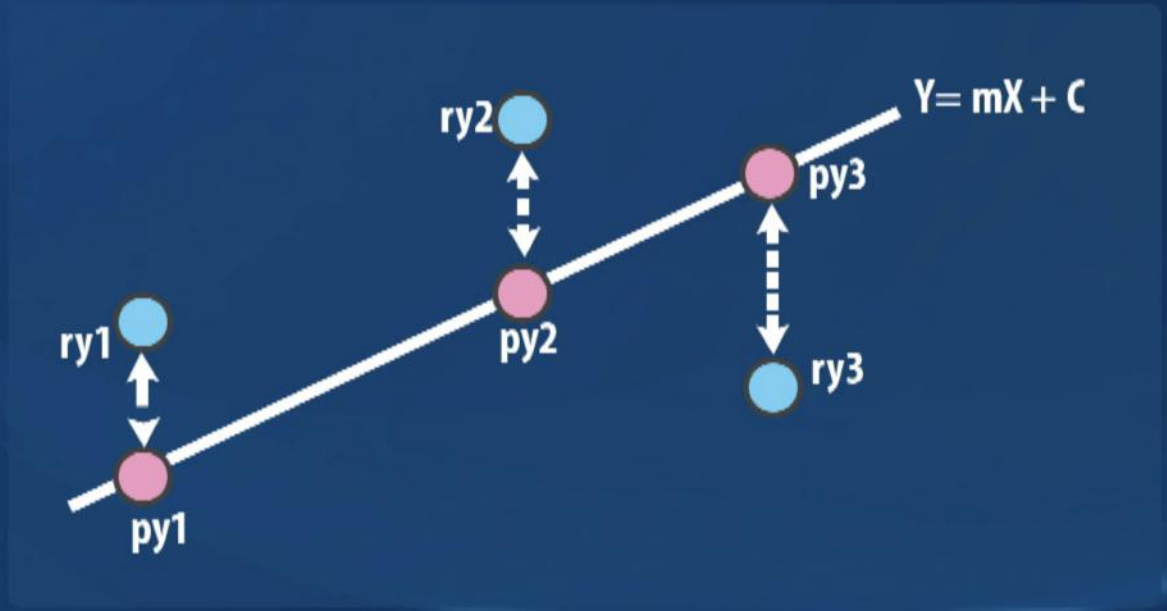
ML – HOW IT LEARNS?

- In order to find f(X), we need to know values of m and C.
  - ML Algorithm focuses on minimizing error between guessed value and actual value using mathematical function known as Least Square Fitting.
  - Min (s) $=(ry1-py1)^2 + (ry2-py2)^2 + (ry3-py3)^2$



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