AI Introduction

Get Started With AI

Agenda

1. Basic Idea about AI and Machine Learning
2. Machine Learning - major categories
3. Supervised Machine Learning Examples
4. Basic thought how Supervised learning evolves
5. Supervised Learning Bifurcation
6. Basic Terminologies
7. Now one Real World Example
8. Steps to Machine Learning
9. Linear Regression Algorithm
10. Live Sample

What is AI in general?

1. AI is building machines as smart a humans

2. Then divided into two streams
   a. Cognitive Systems which act live humans
      i. Which can reason, learn
   b. Machines which acts autonomous as general (pattern prediction)

Machine Learning

1. Supervised – learning when we know the desired output

2. UnSupervised – learning when the desired output is unknown

3. ReInforcement – allows the machine or software agent to learn its behaviour based on feedback from the environment.

Supervised Learning Examples

1. Whether a mail is a SPAM
2. Price of Houses
3. Image Recognition
4. Identity Detection from voice
5. Self Driving Cars
6. Disease Detection Systems
7. Match Making
8. ....

Supervised Thoughts

1. Let's see **Predict House Prices**
2. Pattern Findings
3. Make a Model
4. Use the Model

Supervised Bifurcation

1. Classification
   a. Logistic Regression
   b. SVM
   c. Neural Network
   d. …..
2. Regression
   a. Linear Regression
   b. SVM
   c. Neural Network
   d. ….

Learning Terminologies

1. Feature
   a. Everything is a real number
2. Feature Vector
3. Weights

Now One Real World Example - Description

1. A company named HQ have customers who pays monthly bills.
2. HQ have to call customers throughout the months to collect bills of last month of their product usage.
3. We have 270k calling data of the customers where data captured are
   a. Customer_id : Identifies a customer
   b. Profession : Customer profession like SE(Software Engineer, Self Employed etc.)
   c. Customer_Profile : HQ profiles their customer based on their behavior (AA, BB, AB etc.)
   d. Call_Originate_Time : Time when the customer is called
   e. Call_Type : Customers are reached by automated system or customer asked to dial them at a particular time or dial the customer by human intelligence.
   f. System_disposition : WHen dialed customers could be busy, no_answer, CONNECTED etc.

Now One Real World Example - Problem

1. Apply ML to so that in future how many times the customer have to be called before the customer will be "CONNECTED" for the 1st time.
2. The data to predict this HQ will pass only customer_id, customer_profession, customer_profile of a customer.
3. In response they want number of time the customer have to be dialed.
4. Example : given data [customer_id_a, profession_SE, profile_BB] if I pass to the ML algo, algo should return a numeric value 1,2 or 3 ...n times the customer needed to be dialed.

Steps to Machine Learning

1. Get the Features
2. Clean the Data (Domain Knowledge)
3. Sanitize the Data (Domain Knowledge)
4. Choose a Algo (Parameter Tuning)
5. See the Results
6. Understand the results (Good OK) else repeat from ….