AYESHA REHMAN

MACHINE LEARNING ASSIGNMENT 1

Q1) How and where is facebook using Machine Learning to improve user experience?

ANS 1:

Machine learning is a subset of Artifical Intelligence that has a number of applications in today's world.It is proving to be beneficial in almost evey field and through a number of ways.One of them is through facebook.Facebook is using Machine Learning to improve user experience through:

-Ads

-Tagging users on pictures

-Suggested friends

-Relating with other social media applications

Ads:

When using facebbok,a user comes across many Ads while scrolling,chatting etc…

These Ads may relate to anything (study abroad,electronics,travel agencies,etc…).

When a user clicks on any particular Ad or like a particular page,then, facebook comes to know the area of interest of the facebook user and hence it shows the Ads related to his area of interest whenever he uses facebook by "predicting and analyzing".

TAGGING USERS ON PICTURES:

Facebook also increases user experience by allowing a user to tag people in a picture through facial recognition.This is done through machine learning.

SUGGESTED FRIENDS:

If a facebook user stalks any other user,then,that person comes in the list of "suggested friends" to add as a friend on facebook that gives an indication that the suggested user has stalked your profile.

This helps in increasing user experience and this is also done through Machine Learning.

RELATING WITH OTHER SOCIAL MEDIA APPLICATIONS:

Facebook relates with other social media application like instagram,whatsapp,twitter,etc…

If a user likes posts,pages and Ads on facebook of a particular type,then,instagram shows the user the same type of pages in suggestions to follow them as it gets to know our area of interest.Similarly,if a facebook user has a friend on facebook,then,whatsapp shows the name and number of that person that "this person is on whatsapp and you can add him/her".This task is performed through Machine Learning and hence,the experience of user is increased through facebook.

****************An algorithm is working at the backend to perform all these tasks***************

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Q2) How do you think deep learning can change the world and do wonders?

ANS 2:

Deep Learning relates to study of neural networks in depth.It is a subset of Machine Learning (which itself is a subset of Artificial Intelligence).

Deep learning is a very powerful tool that can be used to change the world and do wonders.

In 80's,people were not even aware of the word "Internet".Computers were very large in size but their ability to perform multiple tasks was very less and costly as well.But, with the passage of time,technology began to advance and a rapid reduction was seen in the size and the cost as well of computers.Moreover,the processing and the ability to perform tasks became faster and faster.

A rapid development was seen within 10 to 15 years,and more betterment was seen in the next 10 to 15 years.

All this is done through deep learning.

By studing this past scenario of rapid development in a few years,we can see that in future,we can reach upto the heights of turning our imagination into reality.One of them is to develop such robots that will be exactly similar to a human being and those robots will be able to do everything that a human being can do,even things like "six senses,the ability to think,emotions,etc…"

This task and many other imaginative and wonderous tasks like this seem impossible but they aren't as they can be accomplished through constant and proper study of Deep Learning.

Deep Learning,if properly utilized,can bring about a huge change in the world and by being helpful in medical sector,by providing comfort zones to people who aren't capable of working by replacing them with robots and also by saving money through reduction in cost and size of products and by using this money in development of other sectors of a country like economy.

These are just a few examples,but,Deep Learning can be used in a vast number of ways for bringing about a change in the world and do wonders.

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Q3) What is your dream AI project that can become into reality and can have a commercial value.Justify your answer.

ANS 3:

My dream AI project is related to help people with disabilities.I aim to develop such a project that will be highly useful for people in need so that they can lead lives easily just like normal human beings despite their disability.

-HYBRID ASSISSTIVE LIMB EXOSKELETON:

The project is basically a robotic exoskeleton to help paralyzed people.

This robot is based on a ***"voluntary control system"*** that provides movement by detecting the intention of the wearer from biosignals in advance of the actual movement and ***"robotic autonomous control system"*** that provides automatic motion support.

When a person intents to move their body, nerve signals are sent from the brain to the muscles through the motor neurons, moving the musculoskeletal system.When this happens,minor biosignals are detected on the surface of the skin.The suit registers these signals through a sensor attached to the skin of the wearer.The power unit moves the joint to support and amplify the wearer's motion based upon the obtained signals.

Besides assisting the disabled and elderly in their daily tasks,this suit can also be used to support workers with physically demanding jobs such as disaster rescue,etc… It is mainly used by disabled patients in hospitals.

In future,this suit can be effectively used for rehabilitation after spinal cord injury or stroke.

-ROBOTIC NECK BRACE FOR ALS PATIENTS:

Robotic neck brace assist patients suffering from Amyotrophic Lateral Sclerosis (ALS) in holding their heads and actively supporting them during range of motion.

This brace can help patients in not only improving eye contact during conversation,but can also help in facilitating the use of eyes as a joystick to control movements on a computer. This robotic neck brace uses both "sensors and actuators" to adjust the head posture,restoring roughly 70% of the active range of motion of the human head.Using simultaneous measurement of the motion with sensors on the neck brace and surface electromyography (EMG) of the neck muscles,it also becomes a new diagnostic tool for impaired motion of the head-neck.

This brace would also be useful to modulate rehabilitation for those who have suffered whiplash neck injuries from car accidents or have from poor neck control because of neurological diseases.