**Submitted by: Qirat Akhtar**

Qno.1 How and where facebook is using machine learning to improve user experience?

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| **Where** | **How** |
| Suggesting Friends  At the time of signup facebook, facebook suggest some friends. At that time, you only give very few details to facebook including name, email or phone number.  After Signup facebook | Facebook gather data using machine language to improve user experience like they have an option to import email address book, in order to find your friends more easily. And on the mobile app, it does this for your contacts phone numbers that are stored in the phone as well. Facebook have a database of millions of people’s connections. If you are in one of those people's address book, they will show up in the friends you may know or suggested friends section. Facebook can also suggest friends by your IP location.  Whatsapp is also acquired by facebook so they looked whatsapp database to find connections. Like if your phone number is added in any whatsapp group or even saved in your friends mobile phone as a contact, then it helps algorithms to find connections and give more and more accurate results.  After signup, facebook deep learning algorithms analyze your profile and find accounts with mutual interests, people who visited your profile, people who are in your contact list and vice versa, people from groups you are also and much more. |
| See Translation (Fast and accurate translations in more languages) | There is an option on facebook to see translation in your pre-selected language. It allows billions of people to connect and communicate in their preferred language. Facebook is using MT (Machine Translation) or deep learning to translate from one language to another. Facebook is now serving translations for more than 4500 languages. Facebook announced that their MT translates language upto 10 times faster and more accurately than any other system. |
| Face recognition | Face recognition is another wonder of facebook machine learning. It helps you to recognize your friends. Facebook machine learning system analyze the image in form of pixels and creates a signature (faceprint/fingerprint) which is like hash or series of numbers/strings.  This signature is used to detect the face again in future pictures and suggests you to add a tag.  It also helps to decrease scam / fake profiles. If a user tries to upload your profile picture, then facebook machine learning system will asks to add more pictures or deactivates the fake profile. |
| Facebook Targeted Advertisement | Facebook advertising is another wonder of deep learning. It analyze your age, gender, location, page likes, interests, and even your mobile data including search history to profile you into select categories and then show you advertisements on your timeline or messenger app specifically targeted towards these categories. |
| Facebook News Feed | Facebook newsfeed scrolling down become addition to many people. It is due to deep learning mechanism of facebook because facebook only show posts and stories to the timeline that have user interest. Some posts and stories shows up higher in news feed while other are not even shown. It is because facebook deep learning systems analyze your interest and shows posts accordingly. Your friends, facebook pages and public figures that you interact a lot and show reaction in form of likes or comments is on top priority. Also posts are popular with lots of likes, comments or shares on facebook have a chance to appear on your newsfeed. |

Qno. 2 How do you think deep learning can change the world and do wonders?

Today, Deep learning starts changing the world in many aspects. They will become better and better day by day. From education to Medicine and from social media to advertising it is showing its wonders. The main aspects including:

1. Virtual Assistance: Cortana (for windows users), siri (for iphone users), Amazon Alexa (Android) used deep learning and take voice as a command and perform certain actions.
2. Translations: (Discussed in question 1)
3. Vision for driverless cars (Deep learning helps to understand the reality of outer world, i.e road and helps to recognize the car how to respond. It may take data from multiple sensors and give the instructions to car / robot like to stop or not. The more data deep learning systems receive, more accurately car/robot behave without a human.
4. Chatbots: Chatbots are used today by many companies to provide customer support. It is another wonder of deep learning. In chatbots, computer will responds and communicates with users and provides assistances to them.
5. Transforming images from monochrome to color: Transforming images from black and white to color was first done by humans. Today, deep learning algorithms analyze the image and transform it from monochrome to color. The results are impressive and accurate.
6. Face recognition: as we discussed face recognition in question 1, it is currently used by facebook. It may be used by individuals in future to fulfills desires like for Home security lock with face. The main challenge of deep learning in this is to analyze the face even when the person’s outlook is change like by changing hairstyles or even if the image quality is bad due to poor light.
7. Medicines: Deep learning can play a vital role in the field of medicine and treatments. From disease diagnoses to medicine recommendation specifically for an individual based on genome (genome is a genetic material of an organism consists of noncoding DNA. contains all of the information needed to build and maintain that organism)
8. Personalize shopping and entertainment: Even wonder how youtube suggests videos to play next? Or facebook shows exactly the same advertisements you are looking to buy? It is because of deep learning systems.

And many other ..

Dream Project :

My dream project is a combination of deep learning, artificial intelligence, robots and internet of things, that is a **SMART HOME**.

It starts from a face recognition lock (when we enter in home), built in sensors, speakers and microphones. It takes voice signals to perform certain actions.  includes the integration of our voice-controlled AI assistants into our smart home: giving commands like the room would get a little warmer, or the lights a little dimmer. From grocery list needed in kitchen to placing online orders from ecommerce website like hummart. (confirms before placing). It asks weather tea or coffee and make the exactly same. Where all the devices are interlinked with eachother. health sensors embedded in your room that detected signs of an impending illness and placed medicine order online. Where we spy our pets from office. Where there is robot to clean the home and do cooking. A system that do not rely on humans. There should also a room where we use hologram technology to meet with friends and family members. There should also a car in home that do not need driver to go out. There is multiple sensors built on the car and programmed to do certain actions like to stop or go.