

Week 3: AI and Society

In this section we will study about the role of AI in society. How society can grow by AI.

1. Realistic View of AI:

AI is kind of superpower, it automates the things even it is simple thing but when it is implemented it has bigger impact on different things.

We should follow Goldilocks rule for AI which is:

Neither too optimistic nor too pessimistic, don't over spend or think on unnecessary danger.

Too optimistic mean having attitude like AI can do everything and it is super intelligent and killer robots are coming. Too pessimistic means thinking that AI can not do everything and AI winter (downfall) is coming. There was downfall of AI in past which stops the further research but now AI has introduced enough concepts that can be used to build a lot of things. Don't feel danger from AI. Have the right attitude that AI can not do everything but will transform industry.

I. Limitations of AI:

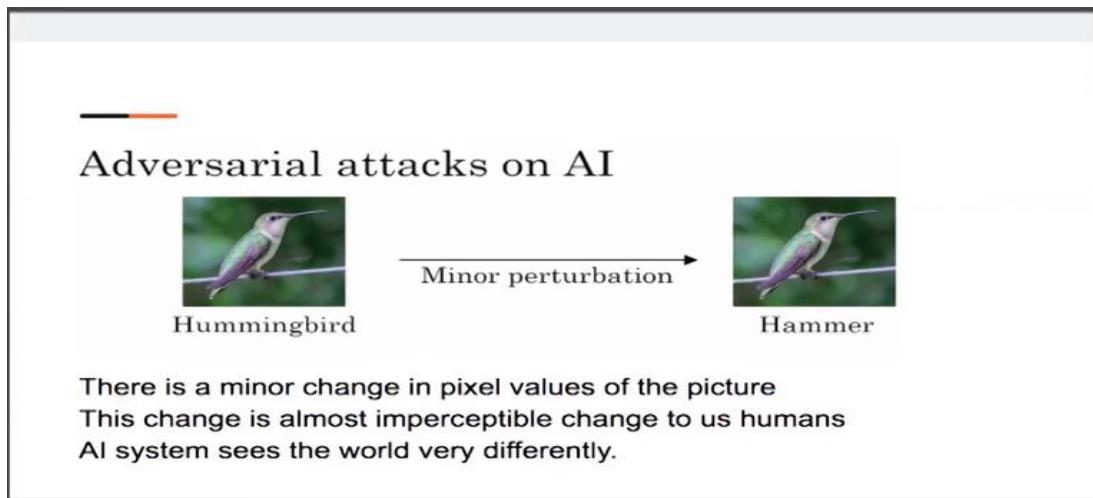
- First and the main limitation is not having enough data. Data is most important for AI. If data is not enough proper results can not be expected from the model.
- Explaining you model that how it is working and what is happening to produce result is difficult so, it also makes difficult to convince someone. But we can convince people after the good or desired results.
- AI models become biased when you will train them on biased data. They become unable to do correct decisions. This is due to us because we trained them on biased data.
- Another limitation is Adversarial Attacks. When you trained the model properly on images and it works on those images and now images are modified and model is unable to make decision so this is adversarial attack. It disturbs the model learning.

2. Discrimination and Bias:

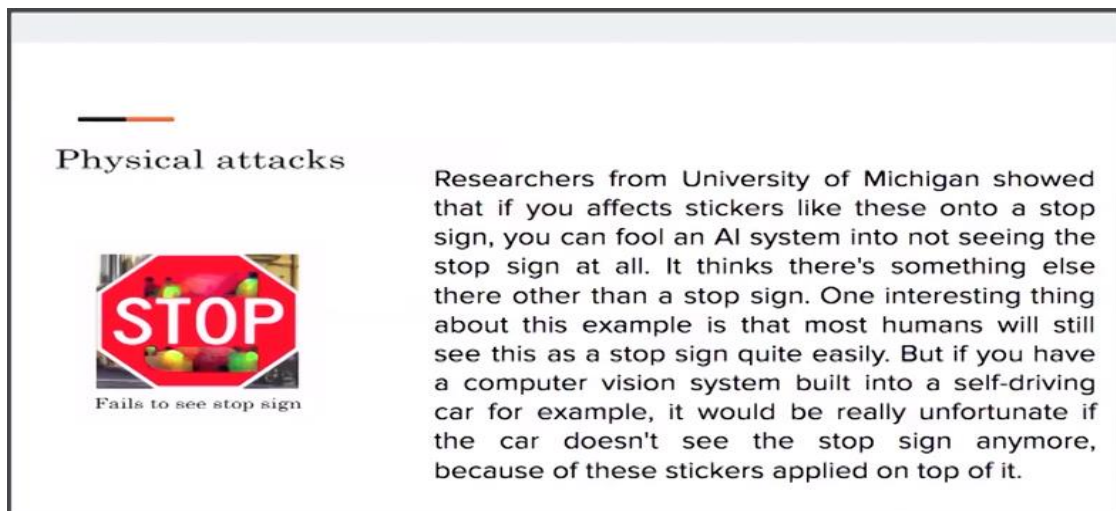
It is the very issue with data that if data is biased result will be biased. It can make big trouble in results and can produce injustice results. **For Example.** If you are hiring people included male and females and you are using a hiring tool. If you train this hiring tool and provide 1000 data and you do not distributed data properly. And your data is like that which fails most of male and it is passing females at great extent. So, if something will be given to model for prediction it is biased now. It also happens in real life if males are coming for interview and most of them are failing and females are passing now when the next male will come to me for interview. I will make a prediction that he will fail the interview but I should not predict this before interview same happens with the model of AI.

3. Adversarial Attacks on AI:

- When you trained the model properly on images and it works on those images and now images are modified and model is unable to make decision so this is **adversarial attack**. It disturbs the model learning. **Example** of this is, when we receive an email, it will be checked that is it spam email or something else if for example email have different content like spam + important thing then the model will be confused and disturbed this the adversarial attack.



- Physical attack also a kind a disturbance that happens in AI system.



If sticker or caution board on the road side is not completely visible (when someone stick something on it or remove it or scratch/remove some part even human can understand it). When self-driving car will move on road it will not be able to understand that board. And it will keep on moving ignoring stop symbol.

Physical attacks



"Milla Jovovich"

A group at Carnegie Mellon University was able to design a funky pair of glasses like this. So, that when does man wears this pair of glasses, he can fool an AI system into thinking that he is actress Milla Jovovich.

So, same in face recognition system if person put on the mask or any other glasses type or thing then system will be confused and will not be able to understand it. It is the physical attack on the system.

4. Adverse Uses of AI:

Having a lot of uses there are misuses of AI too.

Adverse Uses of AI

- **DeepFakes**
 - Synthesize video of people doing things they never did
- **Undermining of democracy and privacy**
 - Oppressive surveillance
- **Generating fake comments**
- **Spam vs. anti-spam and fraud vs. anti-fraud**

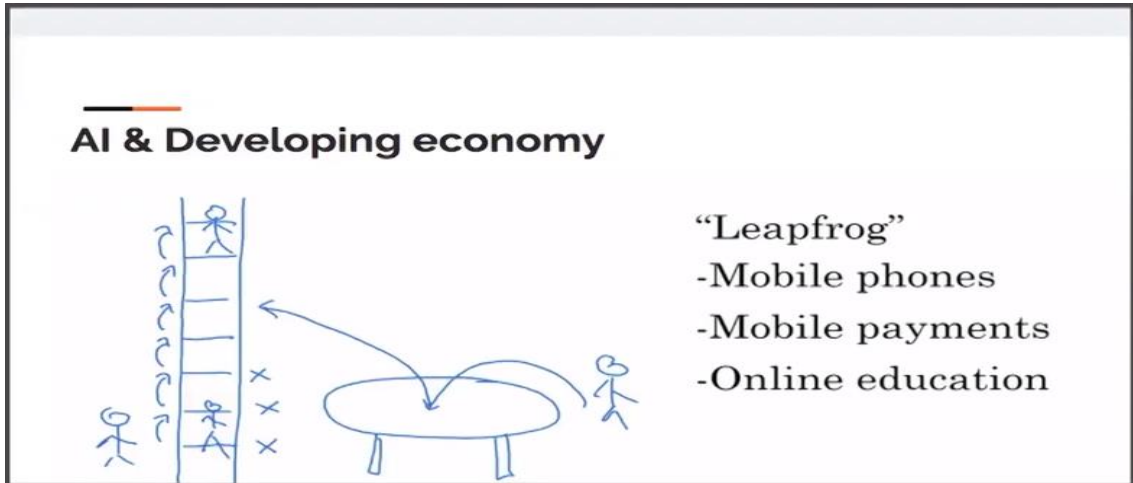
Deep fakes is the algorithm which copies the style of talking, voice of different celebrities and politician or anyone and then produce a fake video in which that person is speaking the things he never spoke and it is accurate to the point that human cannot guess that it is fake and this is system generated voice and face.

After this the same person made the anti-algorithm of this and show that how can we guess that video is fake or not.

5. AI and Developing Economies:

AI can help us to build up the economy as we are developing countries. Every time there is major technological event such as of AI, it gives chance to make remake the world. AI affects both developed and under develop countries.

Developing economies gradually moved up the ladder. There are much chance to use automation in lower levels. We can trampoline to move higher rungs by using automation in mobile phones, mobile payments and online education which will boost up our economy.



All the other leading countries china and US are still immature. You cannot say that these countries have done complete work and no one can do more work. It is not like that, it's a open ground.

We should start implementing AI in our vertical industries (our strength, things we are doing good, profitable ones) and we should automate those task that we are performing good without AI and make it stronger and better.

How developing economies can build AI

- US and China are leading, but all AI communities are still immature
- Focus on AI to strengthen a country's vertical industries
- Public-private partnerships to accelerate development
- Invest in education

6. AI and Jobs:



These figures are by **Mckinsey global institute**.

So, jobs will be replaced to great extent. For counter solution of job replace is Conditional basic income which is unfortunately not established in Pakistan but it is in many countries. In Conditional basic income people receive their income but there is condition with it that they will learn some skill or new thing so that you can get new job. You will keep on receiving income till you learning ends.

Secondly there must be a plan that if this happens how they will fill the effect of replacement. How people can get new job instead of replaced job.

We should start learning about AI with our daily life. So, that we must have knowledge of it.