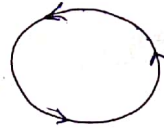


Full cycle Deep Learning application:

Steps of an ML project / Application:

1. Select a problem. (Supervised learning / any other)
2. Get your data. Train / Dev / Test.
3. Design Model
4. Train Model
5. Test Model
6. Deploy
7. Maintain your system.



QA: Quality Assurance.

Point 1:

On project: Desk lamp with built-in 'speech activated system'?



$$x \rightarrow y$$

What would you say whether a project is a good project or not?

1. Interest
2. Data Availability
3. Domain Knowledge
4. Utility
5. Feasibility

Point 2: 3, 4, 5:

Get Data:

How many ^{alg} would you spend to get it?

Fibonacci: 1, 2, 3, 5, 8, 13, ... days.

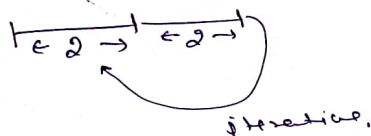
How would you collect the data?

=> 1-2 days on data.

Reason: It's iterative process. Try as soon as possible.

Go around. Ask people to say trigger word.

Learning algo has problems with generalization.

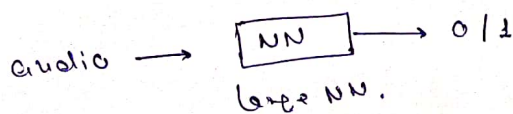


=> First time you try it will never work.

Keep clear notes on experiments done.

↳ Every knows it, but are very bad at it.

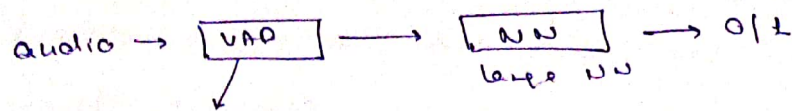
Point 6: Deploy:



Edge
↓
(Close to the data)

Cloud

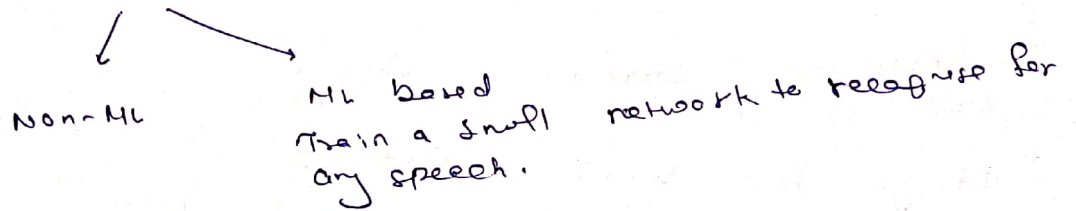
Because of latency & privacy, lot of this computation is done on edge devices.



voice Activity Detection.

If someone is talking then only encode the information.

VAD option:



which you will pick?

Non-ML Reason?

- Andrew has worked, so because he has experience he might choose this (ML-based)
- First time working - try simple & dirty problem. If dog barks / Noise, then no issue.
- If you have large team working on it, neural will work better. But if you are startup team then option-1 will be much better.
- This system will be more robust to accent change.
- One of the biggest problem you face, the data you train on is different from data you test on.

Problem of data changing.

- New accents
- Different background noise
- New microphone. For human it might be same, but for machine it's not.

- Web search: We train NN to give relevant search but suddenly something changes. Elections, Chinese language generate new words.
 - Self-Driving: A neural network trained for different traffic lights meaning, lane marking.
 - Inspection: Surrounding changes.
- "If you have something that you can handcode then handcode it. It will work better"

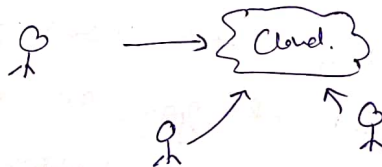
Edge

Cloud ✓

Which is better, keep aside the facts of privacy etc.

- Easier to update.
- You may not even find out that there is some issue if there is not cloud.

- Gives
- Data for training



QA - It is different from other softwares.