1.Deep learning grows rapidly and surprises us with amazing empirical results.

Empirical results over the past couple of years have shown that deep learning provides the best predictive power when the dataset is large enough.

However deep learning will push other learning algorithms to near extinction, is because of the unsurpassed predictive power of deep learning especially on medium-to-large datasets. Other algorithms will become obsolete when people begin to consider deep learning as the first solution to some problems, such as pattern recognition.

On the other hand, most people still believe that deep learning will not replace all other models and algorithms.

For many applications, far simpler algorithms like logistic regression or support vector machine will work just fine, and using a deep belief network will only complicate things.

However, the complexity of deep learning and its requirement of large amount of data are still need to be solved before Deep Learning becomes the first choice for machine learning algorithms.

2

MACHINE LEARNING

PROS

Trends and patterns are identified with ease

Machine learning improves over time

Cons

There is a high level of error Susceptibility

It may take time (and resources) for machine learning to bring results .

**Supervised learning**

**PROS**

clarity of data

ease of **training**

CONS

the inability to **learn** by itself

UNSUPERVISED LEARNING

PROS

* It can detect what human eyes can not understand
* The potential of hidden patterns can be very powerful for the business or even detect extremely amazing facts, fraud detection etc

CONS

* unsupervised learning is harder as compared to supervised learning.
* It can be a costly affair, as we might need external expert look at the results for some time.
* Usefulness of the results; are of any value or not is difficult to confirm since no answer labels are available.

REINFORCED LEARNING

PROS

* This technique is preferred to achieve long-term results which are very difficult to achieve.
* This learning model is very similar to the learning of human beings. Hence, it is close to achieving perfection

CONS

* Too much reinforcement learning can lead to an overload of states which can diminish the results.
* Reinforcement learning is not preferable to use for solving simple problems.