

## The Future of Machine Learning: Supervised, Unsupervised and Reinforcement Learning

Anirban Chakraborty

M.Tech, Artificial Intelligence  
Agartala, India

-----\*\*\*-----

**ABSTRACT:** *The Machine Learning is a data analysis technique that automates the development of analytic models. It is an important field of study based on the premise that machine data can be studied and that trends and judgments can be made with little human input. On the basis of fresh discoveries, machine learning algorithms may be constructed from provided data.*

**Keywords:** *Machine Learning, Clustering, Association, Classification, Identification.*

### INTRODUCTION

Machine Learning (ML) is a family of algorithms that improves the efficiency of software systems that anticipate outcomes without being explicitly coded. Machine learning focuses on the creation of algorithms that can utilise input data and mathematical analysis to predict an event's occurrence, as performance enhancements are achievable. In recent years, Machine Learning has shown to be highly successful in predicting application outcomes and utilising computational capacity.

Machine learning is an outstanding method for understanding Artificial Intelligence. It's an important component of Artificial Intelligence. It's the future of Artificial Intelligence.

The following are significant characteristics of Machine Learning:

#### 1. Expected Value

Computer literacy may also be used to *Estimation Systems*. In the instance of measuring failure, the system will forecast the cause of failure.

#### 2. Image Recognition

Facial and Picture recognition is possible via computer processing. A specific technique of education is feasible. Any customer in a multi-person database must register a photograph of his or her face.

#### 3. Speech Recognition System

It is the translation of human-spoken language. This is used while searching for characters or more inside the text. Device Research includes speech generating, voice dialling, communication routing and devices.

### OBJECTIVES

This paper has been penned with the following objectives:

1. Awareness about capacity of Machine Learning
2. Implement Machine Learning in Real Life Scenario

**TYPES OF LEARNING**

**1. SUPERVISED LEARNING**

In supervised learning, an artificial intelligence system is created that produces particular output. If you have new data input 'x' and the mapping function, you may estimate the corresponding data output variable 'y' if you know the aim. x is a self-employed person. Then our vector model, which is the dependent variable, is exercised. The machine observes and comprehends the data set's context. This sort of Learning may be modelled as a linear and nonlinear contingent connection (y) with an independent variable (x).

**A. CLASSIFICATION**

When the performance is a classified query, the attribute form is "individual," "user" or "other Infected" and "uncontaminated."

**B. REGRESSION**

The output function is a regression question with a true value, such as 'radius' or 'temperature,' as its answer.

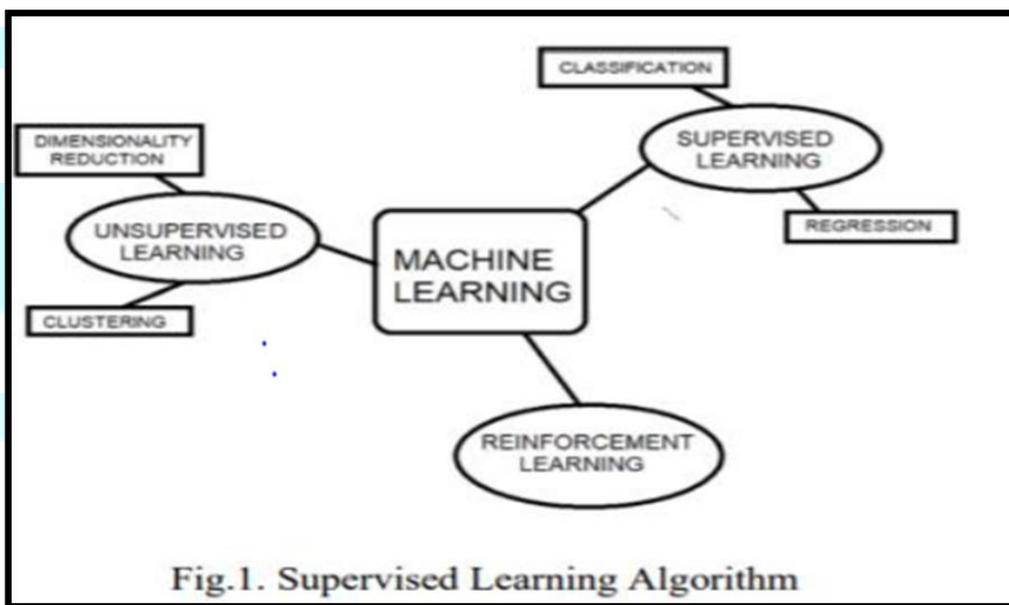
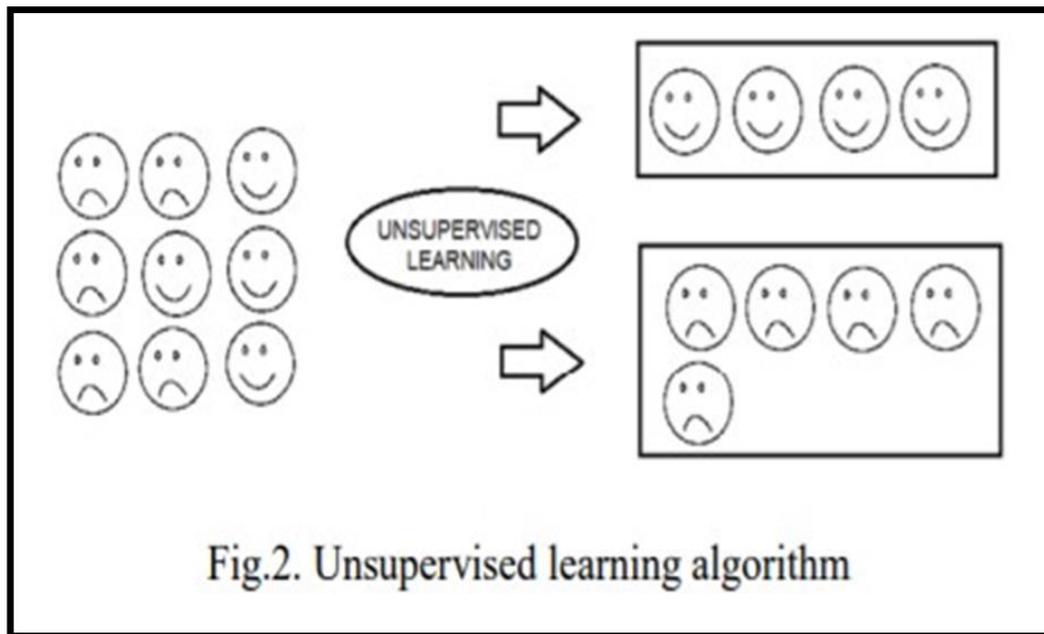


Fig.1. Supervised Learning Algorithm

**2. UNSUPERVISED LEARNING**

Without pre-training testing, the AI architecture is constructed for unattended instruction, unknown data, and programme algorithms that operates as uncategorized data. Labelled algorithms have a relationship with quality. Unrestricted machine training is one method of evaluating AI.

In the example shown below, our characters are given. The trend of "laughing" is "not laughing." Throughout our training data, we do not supply labels for the matching data. To find additional outcomes, the unattended layout will separate the characters by analysing the data type and the information creation or delivery of the underlying models.



**CLUSTERING**

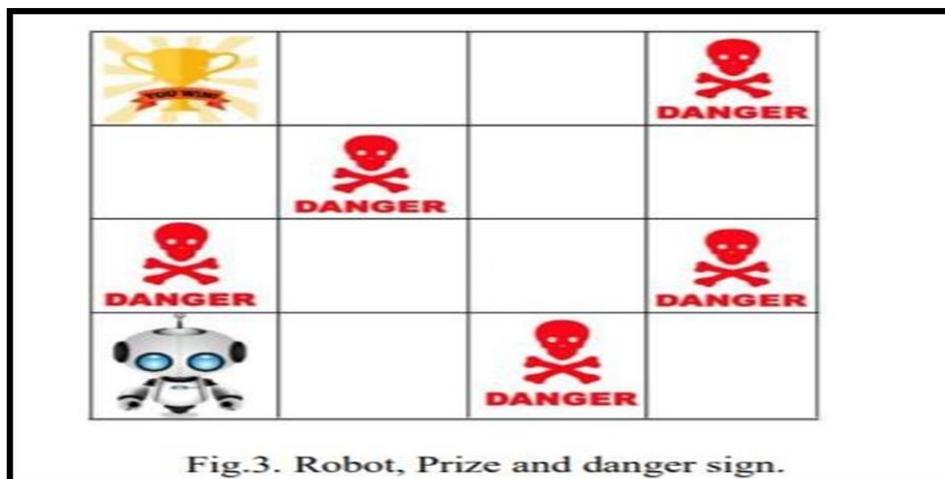
You may build a clustering issue and evaluate an inherent grouping of outcomes, such as buying activities and consumers.

**ASSOCIATION**

The logical complexity of community law is when you choose to have laws that explain substantial chunks of the information, such as the fact that persons who seem to purchase X also appear to purchase Y.

**3. REINFORCEMENT LEARNING**

An algorithm or agent that enhances learning, trained to interact with its surroundings. Training for change differs in its emphasis on directed learning; training data is the key to response. The model is consequently taught with the correct reaction, despite the fact that there is no correct answer; this strengthens the individual who knows what to perform at work. In the absence of a data collection, it is essential to determine if the information comes from the organization's past or its awareness.



The image above depicts the unit, the prize, and the warning signal. The robot's objective is to earn the trophy and prize while avoiding the danger warning obstacles. The machine will evaluate all possible routes and then choose the optimal one. He would win the award if he faced the fewest obstacles. Each correct manoeuvre will earn the robot a prize, but each error will reduce its allowance. Total compensation is calculated as a diamond for the final payout. This we should know about the incentives received by the employee. It heightens awareness of the world so that the next step may be chosen.

## CONCLUSION

Everyone is supposed to get benefit from machine learning. It is being used for convenience in all businesses. This is the technological future. Using Machine Learning, any massive and intricate computation can be simply done. It is the most recent scientific study.

## AUTHOR DETAILS



MR ANIRBAN CHAKRABORTY

BTECH COMPUTER SCIENCE AND ENGINEERING

MTECH ARTIFICIAL INTELLIGENCE

LOVELY PROFESSIONAL UNIVERSITY

PUNJAB, INDIA

email: anirforyouall@gmail.com

## REFERENCES

1. Tope Komal , et al.; " Encryption and Decryption using Artificial Neural Network" , IARJSET , Vol. 2, Issue 4, April 2015 pp. 81-83
2. Yousif Elfatih Yousif, Dr.Amin Babiker A/Nabi Mustafa, Dr.Gasm Elseed Ibrahim Mohammed" Review on
3. Comparative Study of Various Cryptography Algorithms",IJARCSSE , Volume 5, Issue 4, April- 2015, pp. 51-55
4. William Stallings, "Cryptography and Network Security: Principles and practices, Dorling Kindersley (india) pvt Ltd., 4th edition(2009).
5. Ajay Pal Singh , Parvez Rahi " Performance Enhancement in Public key Cryptosystems for Security using RSA
6. Algorithm " , IJARCCCE , Vol. 5, Issue 11, November 2016 , pp. 359-362
7. Oludele Awodele , Olawale Jegede" Neural Networks and Its Application in Engineering " , InSITE, 2009 [6] Andrej Krenker , Janez Bešter and Andrej Kos " Introduction to the Artificial Neural Networks" , Methodological
8. Advances and Biomedical Applications
9. Manikandan.G, Rajendiran.P, Chakarapani.K, Krishnan.G, Sundarganesh.G, "A Modified Crypto Scheme for Enhancing Data Security", Journal of Theoretical and Advanced Information Technology, Jan 2012.
10. A.Nadeem, "A performance comparison of data encryption algorithms", IEEE information and communication technologies, pp.84-89, 2006.

11. Diaasalama, Abdul kader, MohiyHadhoud, “Studying the Effect of Most Common Encryption Algorithms”, International Arab Journal of etechnology, vol 2,no.1,January 2011.
12. Atul Kahte.Cryptography and Network Security.Tata Mcgraw Hill, 2007.
13. Shasi Mehlotra seth, Rajan Mishra “ ComparativeAnalysis of Encryption Algorithms For Data Communication”, IJCST Vol. 2, Issue 2, June 2011.
14. Wuling Ren. A Hybrid Encryption Algorithm Based on DES and RSA in Bluetooth Communication. Second International Conference on Modeling, Simulation and Visualization Methods (WMSVM), 2010.
15. Natalie, R. (2015). 14 Main Advantages and Disadvantages of Computer Networking, <https://greengarageblog.org/14-main-advatages-and--ofcomputer-networking>.
16. Anshika, G. (2013). Types of Area Networks-LAN, MAN and WAN.<https://www.geeksforgeeks.org/types-ofareanetworks-lan-man-and-wan/>.
17. Atayero, A., A., Alatishe, A., S., and Iruemi, J., O. (2012). Modeling and Simulation of a University LAN in OPNET Modeler Environment, International Journal of Emerging Technology and Advanced Engineering (IJETA), Vol. 2250–2459, pp. 1-4.
18. Singh, H., Singh, S., Malhotra, R. (2013). Modeling, Evaluation and Analysis of Ring Topology for Computer Applications Using Simulation, International Journal of Computer Science and Mobile Computing, IJCSMC, Vol. 2, No. 1, pp.1 – 10.
19. Elechi, O., O. (2014). Design and Simulation of Wireless Local Area Network for Administrative Office Using OPNET Network Simulator: A Practical Approach, Information and Knowledge Management, Vol. 4, No. 10, pp. 27