A REVIEW ON APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN MACHINE LEARNING

SUNIL KUMAR*[1], HIMANSHU SIROHI[2] AND JITENDRA KUMAR[3]

[1,3]Department of Mathematics &
[2]Department of Computer Applications,
Swami Vivekanand Subharti University, Meerut- (U.P.), India.

ABSTRACT

The most exciting technology in artificial intelligence is Machine learning. Machine Learning provides systems for the machine and gives capability to automatically learn and improve from experience without being explicitly programmed. For Example the search engine Google is used for search something on internet, the main reasons its work well because of learning algorithm, Every time mailbox is used and it identify inbox, drafts box, sent box etc. That's also machines learning. The main aim of machine learning is the improvement of computer programs and to allow the computers learn automatically.

Keywords: Artificial intelligence, Machine learning, supervised learning, Unsupervised learning, Reinforcement learning Applications.

1. INTRODUCTION

The program of artificial intelligence is called Intelligent Agent. The agent gets to communicate with the environment. The agent can recognize the state of an environment. The state of environment is recognizing by the sensors and then it can affect the state by its actuators.
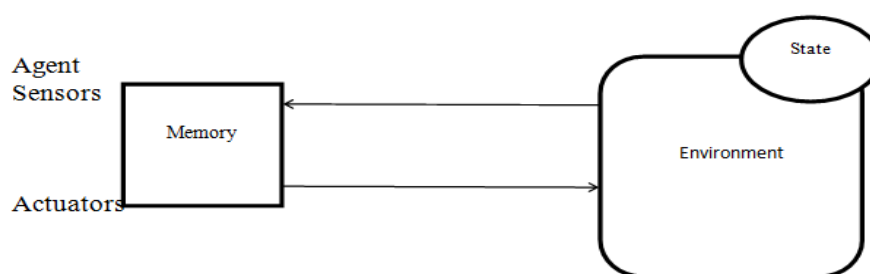
Artificial intelligence primary aspect is control policy of the agent. This policy finds how the input received from the sensors and translated to the actuators. In other words we can say how the sensors are plotted in to the actuators.
The main objective of artificial intelligence is to develop a machine that work as like a human, think like a human, feels like a human.However such a dream can be completed by learning algorithms which try to mimic how the human brain learns.

According to the father of Artificial Intelligence, John McCarthy, Artificial intelligence is "The science and engineering of making intelligent machines, especially intelligent computer programs".
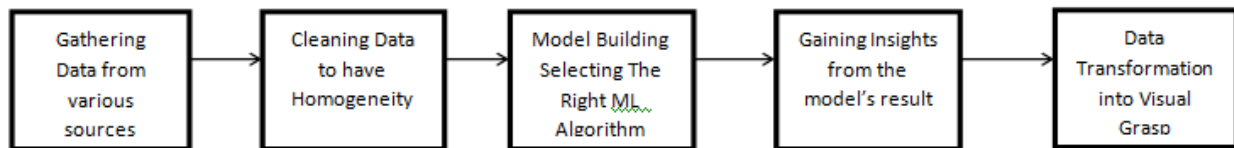
2. MACHINE LEARNING

The process of machine learning is based on algorithms that computer systems use to increasingly improve their performance on a specific task. Machine learning algorithms build a mathematical model of sample data. This model is known as "training data".

Corresponding Author: Sunil Kumar[1],*
[1]*Department of Mathematics, Swami Vivekanand Subharti University, Meerut- (U.P.), India.*

Machine learning algorithms are used in the applications of email filtering, detection of network intruders, and computer vision.

```
┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐
│  Gathering   │   │ Cleaning Data│   │Model Building│   │Gaining Insights│  │     Data     │
│  Data from   │──▶│   to have    │──▶│ Selecting The│──▶│   from the     │──▶│Transformation│
│   various    │   │ Homogeneity  │   │   Right ML   │   │model's result │   │  into Visual │
│   sources    │   │              │   │  Algorithm   │   │                │  │    Grasp     │
└──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘
```

There is a different type of category of algorithm in machine learning that agrees software applications to developed more precise. The basic idea of machine learning is to build algorithms that can collect input data and use statistical analysis to calculate an output while updating outputs as new data becomes presented.In all grounds of engineering, there are larger and larger data sets that are being understood using learning algorithms.

3. TYPES OF MACHINE LEARNING ALGORITHMS

Types of Machine Learning Algorithm- The machine learning algorithm is categorize into the three types.

Machine Learning Algorithm

Supervised Learning	Unsupervised Learning	Reinforcement Learning	Recommender Systems
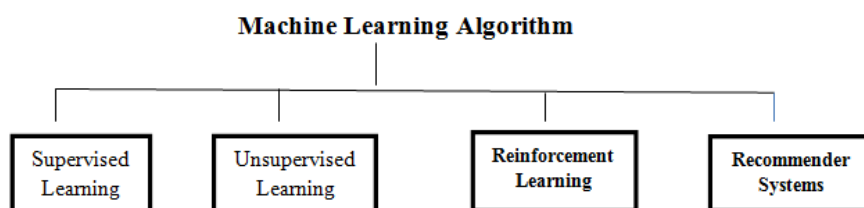
3.1 Supervised Learning- The task of data mining is based on supervised learning that is used for inferring a function into a categorized training data. The training data contain a fixed amount of training examples. In the area of supervised learning, each and every example is a group of containing of an input object and a desired output value. The main objective of supervised learning algorithm to analyzes the training data and creates an inferred function. That function can be used for mapping new examples. For example you have a bunch of molecules and information about which are medicines and you train a model to answer whether a new molecule is also a medicine.

3.2 Unsupervised Learning-Unsupervised learning is a portion of machine learning that acquires from test data and that data are not classified or categorized. The main class of machine learning technique is unsupervised learning that are used to find patterns of data. In unsupervised learning, an artificial intelligence system may group with unsorted information according to similarities and some differences because there are no categories provided in unsupervised learning. For example, you have a group of photos of eight people but without information about who is on which one and you want to divide this dataset into eight piles, each with the photos of one individual.

3.3 Reinforcement Learning-The another part of machine learning is Reinforcement learning. The reinforcement learning algorithm is work for taking suitable action to maximize reward in a particular situation. This learning algorithm is employed by numerous software and machines for finding the best possible behavior or path it should take in a specific situation.

3.4 Recommender Systems-Recommender systems can be well-defined as a learning techniques by quality of which online user can modify their sites to meet customer's tastes. For example, in online shopping the user can receive the rating of a product and also receive the related items when he searched an item because of the existing recommender system. That is why it changed the way people find products, information, and even other people. In Recommender System There are two basic approaches works first one is content based recommendation and the other one is collaborative recommendation, which help the user for obtaining and mining data.

4. APPLICATIONS OF MACHINE LEARNING

There are many application of machine learning that makes a human life easy. For the improvement of our business we can understand how the artificial intelligence and machine learning provide benefits. But there is a many of applications developed in artificial intelligence and machine learning that you can implement to make your life easier.

1. **Powering Infrastructure sund Services-** We are using machine learning technique in creation of new technology, security in different area, services and network organization. For example, recently picked up an AI platform for creating conversational interfaces to power the next generation of chat and voice assistants. We're also adding Artificial intelligence and machine learning technique for new Information technology services and security, as well as hyper-converged infrastructure to balance the workloads of computing systems.

2. **Cyber security Defense-** In addition to traditional security measures, we have adopted AI to assist with cyber securitydefense. The machine learning system continually analyzes our network packets and maps out what is normal traffic. It is responsive of over 102,000 patterns on our network. The machine learning wins over traditional firewall rules or AV data in that it works automatically without prior signature knowledge to find anomalies.

3. **Health Care Benefits-**We are exploring machine learning technology for health care. It can help doctors with diagnoses and tell when patients are deteriorating so medical intervention can occur sooner before the patient needs hospitalization. It's a win-win for the healthcare industry, saving costs for both the hospitals and patients. The precision of machine learning can also detect diseases such as cancer sooner, thus saving lives.

4. **Automation of tasks**: The more practical benefit of using machine learning involves the development of autonomous computers, software programs, and processes that can lead to automation of tasks. By supplementing data mining and through continuous improvement, machine learning systems have been developed and deployed to perform tasks on their own.

5. **Supplementing data mining:** Data mining is the process of inspecting a database or several databases to process or analyzing of data. Take note that the pervasiveness of the digital information age has led to the generation of big data at a faster rate, thus making manual data analysis and interpretation impossible.

5. CONCLUSION

Humans have always wanted to construct a comfortable life, the proof of this lies that we always depend on machines to get our work done faster and easily in a more efficient way. In pervious time machine are used for reducing the manual labor work or completing the work with a short period of time but at present, with the arrival of machine learning humans seek to build machines which are not only powerful but machine should also intelligent that's why machine learning has developed. Machine learning approaches applied in systematic reviews of complex research fields such as quality improvement may assist in the title and abstract inclusion screening process.

REFERENCES

1. Broder, Andrei, and Vanja Josifovski. "Introduction to computational advertising." (2010).
2. Cunningham, Sally Jo, James Littin, and Ian H. Witten. "Applications of machine learning in information retrieval." (1997).
3. Kaur, Harjinder, Gurpreet Singh, and Jaspreet Minhas. "A Review of Machine Learning based Anomaly Detection Techniques." arXiv preprint arXiv: 1307.7286 (2013).
4. Wiese, Bénard, and Christian Omlin. Credit card transactions, fraud detection, and machine learning: Modelling time with LSTM recurrent neural networks. Springer Berlin Heidelberg, 2009.
5. Kumar, Vinod, and Dr Om Prakash Sangwan. "Signature Based Intrusion Detection System Using SNORT." International Journal of Computer Applications & Information Technology 1 (2012).
6. Wagstaff, Kiri. "Machine learning that matters." arXiv preprint arXiv: 1206.4656 (2012).
7. Shoeb, Ali H., and John V. Guttag. "Application of machine learning to epileptic seizure detection." Proceedings of the 27th International Conference on Machine Learning (ICML-10). 2010.
8. Gao, Jim, and Ratnesh Jamidar. "Machine Learning Applications for Data Center Optimization." Google White Paper (2014).
9. Haider, Peter, Ulf Brefeld, and Tobias Scheffer. "Supervised clustering of streaming data for email batch detection." Proceedings of the 24th international conference on Machine learning. ACM, 2007.
10. Sebastiani, Fabrizio. "Machine learning in automated text categorization." ACM computing surveys (CSUR) 34.1 (2002): 1-47.
11. Bratko, Andrej, *et al.* "Spam filtering using statistical data compression models." The Journal of Machine Learning Research 7 (2006): 2673-2698.
12. Xiong, Liang, et al. "Anomaly detection for astronomical data." (2010).