

Review on AI-Driven Health Care Field Post Covid-19

Bhuvanagiri Mounish, Viswajeet Shankar Goswami

Chandigarh University

Chandigarh University

Department of Mathematics

Department of Mathematics

Mounish2@gmail.com

vishwajeet.e9858@cumail.in

Article Info

Page Number: 375-381

Publication Issue:

Vol. 72 No. 1 (2023)

Article History

Article Received: 12 October 2022

Revised: 24 November 2022

Accepted: 18 December 2022

ABSTRACT

Data has been a crucial part and everything is related to Data. Emerging technologies like AI, Machine Learning has proven their presence and has made significant developments. These technologies are utilized by many Health care providers and many other organizations. The orders for this operation involve various opinion and treatment recommendations, end-end activities related to the patient (involvement, Commitment, and Executive conditioning and can also be engaged in Laboratory and decision-making in specific conditions. AI can be Induced in ICUs, Diagnosing Assistance, Medication Assistance, Feedback collecting, and Blood reports

while performing Surgeries. there are cases where AI can do healthcare tasks best when compared to humans

KEYWORDS: Artificial intelligence, Machine Learning, Deep Learning, Tensor flow, EMR

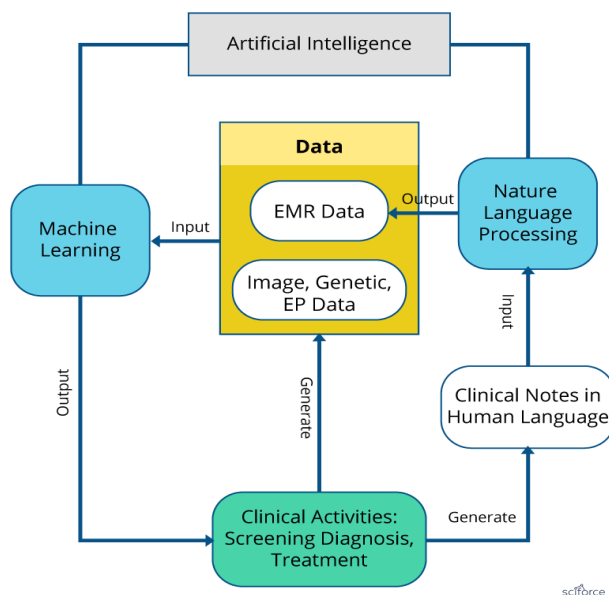
INTRODUCTION

Booming Technologies like AI & ML can also be applied in Health care. Many Technological methods revolutionized certain fields of patient service, especially executive and functional Activities within the health care provider and in medicine exploration for the betterment of procedures with numerous kinds of exploration suggests that AI is doing exceptionally well and better than humans in multiple healthcare tasks, similar as diagnosing complaint. moment, with the help of algorithms by taking the help of algorithms and even competing with radiologists in recognizing deadly tumors, and these are also guiding experimenters in developing cohorts for expensive clinical trials. still, on the base of multiple factors, and we believe that one day AI replaces humans in the wide area of medical process disciplines.

In this publication, we discuss some of the AI capabilities that help to automate the different aspects of the progression of AI in healthcare.

Generally, below is the diagram which shows the AI flow in healthcare

1. AI WORKFLOW IN HEALTHCARE



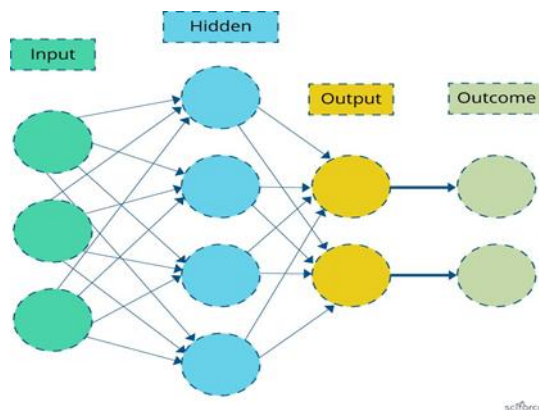
2. EXPERT ACTIVITIES MAINTENANCE

These are implemented on grounds of rules based on conditional statements dependent on technology related to AI. Initially, it is extensively used and in the very later stages of healthcare, they are used for clinical decision support still it is widely used for maintaining electronic health records (EHR) which offer a pile of rules and regulations with some system moments.

These are trained to draw inferences about that knowledge sphere. They perform well and are easy to understand up to some point. still, when rules are more than they tend to contradict, Break, if the source and its dimensions, Measures will change then the rules can be delicate and more of time-taking. And these are sluggishly replaced by some machine literacy algorithms.

3. INTERPRET NLP

Derive sense from these natural languages has been one of AI experimenters since the 1950s NLP, includes functions similar to textbook analysis, restatement



Deep learning neural networks have contributed to the delicacy of recognition. It requires a large natural neural network. In healthcare, the most predominant procedure of NLP involves the published exploration and things involved in (clinical attestation, creation, and understanding NLP) can determine Unshaped clinical conditions on cases, prepare reports, and dashboarding

(e.g., on ECG tracking), derive relations to patients based on this approach.

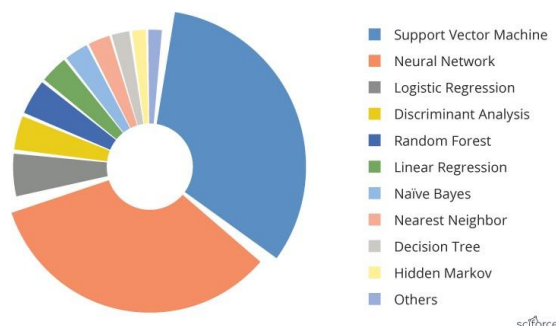
Ex: Suppose, 2000 artificial robots are being deployed each time around this globe

These can be useful in doing various Activities Displacing, welding, carrying, supporting, and assembling objects for maintenance this requires no human intervention.

In Hospitals, they are useful in doing User Defined pre-processing functions in places like manufacturing and storage which help deliver inventories.

Robots in surgery which were primarily originated in the USA- in 2000, giving extra power to surgeons, enhancing their capability, and producing Accurate and minimally invasive lacerations, and sew injuries Important opinions are yet to be concluded by surgeons and some notable procedures in surgery which are included in the field of surgeries (Head, Neck, Bone, Heart, Lungs, prostrate, gynecology)

4. COMMON MACHINE LEARNING ALGORITHMS IN HEALTHCARE



The Most important and common Machine Learning Algorithm is Support Vector Machine which is widely used in healthcare

5. POST COVID AI&ML PROGRSSION IN HEALTH:

Robots work cooperatively with humans which helps in better understanding and results in better decision making and these robots are perfectly trained. They are making human tasks easier their OS is being updated. we can witness the same progressions in intelligence that we see in other areas of AI that would be implemented into a physical one.

Some BIG IT Companies use AI and ML as tools to expand their significance in Business. IBM's Watson gained attention in the media for concentrating more on the perfect drug specifically “cancer” and proactive measures for that. Watson contributed to combining machine learning and NLP.

Google, Enclitic, and some other start-ups developed AI-deduced image-based interpretation algorithms. A company named Jvion offers special clinical success machines’ particularly dealing with the most prolonged diseases and following various treatment protocols. Each could give possible decision support to doctors and health care workers seeking to find the possible opinion in every way and treatment for cases in the best implementation of every scenario in an optimum way.

Several enterprises focus significantly on healthcare employees, doctors’ opinions, and treatment recommendations for various cancer centric on inheritable biographies from the past.

Tech giants and start-ups are collaboratively and individually working subsequently on the same issues. If we take Google, for consideration and are uniting health delivery multiple networks models from big data to advise doctors and healthcare employees in dealing with high-threat conditions, similar as sepsis and heart failure.

6. MACHINE LEARNING, DEEP LEARNING IN NEURAL NETWORKS

One of the most significant for considering statistical technology in befitting models to data and it enables ‘understanding and implementing’ to consider Algorithms and data.

Eg: in a 2018 Report Deloitte check 100 directors in the US who formerly pursue AI, when 63 companies were surveyed, they were employing machine learning techniques in their business. A well-known tool for having important benefits for different approaches in AI and giving different performances.

Example 1 (Machine Learning): In healthcare, the most predominant operation of usual machine learning is identifying a perfect drug and prognosticating treatment protocol

Machine learning Advancements and perfect drug operations bear a training dataset for the outgrowth variables this is called “supervised learning”.

Difficult various of ML concepts are neural network tools and technology which is in consideration since the 1960s it is well advanced in health organizations exploring for many years and it is preferred to categorize operations like studying the case which acquires a particular complaint. It identifies problems based on variables like inputs of labor, Height,

weights, Gender, and Season features’ It is linked in a way that neurons that interpret and analyze signals, and the brain's function algorithm is often described to be weak.

Multiple aspects of machine learning have deep learning models with enormous situations that indicate the variables which help to identify prognosticate issues. There are thousands of features hidden in similar models. A usual set of operations of deep learning in the health care industry is witnessed in detecting serious cancerous tumors in the radiology department which might help in identifying the tumor without developing.

Example2(Deep Learning):

Inthe radiology department discovery of clinically and surgically Relevant features in a thorough examination of data beyond that which can be seen naked eye. Both Deep learning and radiology are most generally set up in oncology-based image analysis. A combination of these appears to have promised lesser delicacy Former evolution of tools in recognition of image analysis, known as a computer-backed discovery Deep Learning used for speech recognition similar to the considerable form of NLP described below. many general forms helpful in statistical analysis, every point in a deep learning model has a small meaning thus it increases the complexity.

7.AI READINESS REPORT Score provided by Oxford:

| S.NO | Country | Score |
|-------------|----------------|--------------|
| 1 | Singapore | 9.186 |
| 2 | U.K | 9.069 |
| 3 | Germany | 8.810 |
| 4 | U.S.A | 8.804 |
| 5 | Finland | 8.772 |
| 6 | Sweden | 8.674 |
| 6 | Canada | 8.674 |
| 8 | France | 8.608 |
| 9 | Denmark | 8.601 |

| | | |
|----|-------------|-------|
| 10 | Japan | 8.582 |
| 11 | Australia | 8.126 |
| 12 | Norway | 8.079 |
| 13 | New Zealand | 7.876 |
| 14 | Netherlands | 7.659 |
| 15 | Italy | 7.533 |
| 16 | Austria | 7.527 |
| 17 | India | 7.515 |
| 18 | Switzerland | 7.461 |
| 19 | U.A.E | 7.445 |
| 20 | China | 7.370 |

Over the last few years, countries are competing to implement AI in various business industries.

Among these Health care sectors were given priority and its implementation of AI to tackle real-world problems has become phenomenal. Each country has adopted futuristic models for implementing the procedure of AI. And below was the report indicating the government's readiness of implementing AI in healthcare among the top 20 countries.

CONCLUSION:

As far as AI is considered and concerning lead jobs will be automated. A survey on collaboration with Oxford by Deloitte suggests that more than 35 jobs could have been automated by the rise of AI up to 10 to 20 times post covid-19 without Human intervention, some factors like external related to technology could hamper jobs, including the cost involved in the improvement of Automation techniques workforce growth, advantages of robotization process simply negotiate labor, and supervisory and community acceptance. For this implementation dedicated training is required looking for a skilled workforce in case if there is any issue arises. Some techniques like Machine Learning and Deep Learning models issue slightly delicate and insolvable interpreting the result and can be considered as one of the challenges.

The little Availability of AI and the complexity in integrating AI into clinical workflows, Analyzing Hospital management systems, inventory and EHR systems, which is accountable for the lack of jobs and its impact seems most likely and things can be automated involved in dealing with some scenarios like ECG, digital information, radiology, gynecology, oncology, pathology for examples, alternative dealing without direct patient contact. jobs like the boosting of AI sector in some fields is probably slow. Many argued, technologies like Deep learning, Machine learning can get a specific diagnosis, and categorize images, considerable reason why these kinds of radiology, and pathology jobs, are not going to vanish. Alternate processes for deploying AI-centric image working are ready to use.

Systematically changes in medical fields and health relations in getting automated image results are useful over the time frame.

References

1. Lee SI, Clark S, Logsdon BA, et al machine learning approach in integrating big data for precision medicine in acute myeloid leukemia. Nat Commune 2018;9:42.
2. Vial A, Stirling D, Field M, et al. The role of deep learning and radionic feature extraction in cancer-specific predictive modeling: a review. Trans Cancer Res 2018;7:803–16. [Google Scholar]
4. Deloitte survey
5. <https://www.oxfordinsights.com/ai-readiness2019>