A Study on Artificial Intelligence (AI) in Indian Healthcare

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Abstract— Artificial Intelligence (AI) refers to computerised imitating intellectual processes characteristics of human, such as the ability to reason, discover meaning, or learn from past experience without being explicitly programmed. AI can be applied to various types of Healthcare data which includes machine learning methods as well as natural language processing. Major diseases that use AI tools include cancer, neurology and cardiology.

Keywords: Artificial Intelligence, Healthcare, Machine Learning Method, Natural Language Processing, History of AI, Present Impact, Future Prediction

I. PURPOSE

The advantages and need of AI have been largely discussed in medical literature. It is equipped with learning and self-correcting abilities to improve its accuracy based on various feedback. Before AI system can be deployed in healthcare industry, it needs to be trained through clinical data. Recently AI techniques have sent vast waves across Healthcare, even fuelling a discussion of whether AI doctors will replace human doctors in future. We could say that human doctors will not be replaced by machines but it can assist human doctors to make better clinical decisions. The increasing availability of healthcare data and rapid development of big data analytic methods has made possible the recent successful applications of AI in Healthcare. Physical examination notes and clinical laboratory result are two major data sources.

II. DESIGN/METHODOLOGY/APPROACH

The AI devices falls in two major categories. First includes Machine Learning (ML) techniques that analyse structured data. Second includes Natural Language Processing (NLP) that extract information from unstructured data. The NLP procedures target at turning texts to machine-readable structured data, which can then be processed by ML techniques. Despite the increasingly rich AI in Healthcare, it mainly focuses around a few diseases such as cancer, nervous system disease and cardiovascular disease. It is not completely unexpected that these three diseases are more focused as these all three diseases are extreme cause of death. A successful AI system must possess the ML component for handling structured data and NLP components for mining unstructured texts.

III. FINDINGS

1) The advantages and need of AI have been largely discussed in medical literature.
2) Despite the increasingly rich AI in healthcare, it mainly focuses around only few diseases.
3) AI devices falls in two categories i.e. ML and NLP.
4) We designed a survey to estimate the awareness of AI in healthcare in public. The survey included frequent questions to derive the knowledge of public regarding AI

in healthcare services. We collected 32 samples through which we got following data about awareness of AI in healthcare.

Data is mention as below:
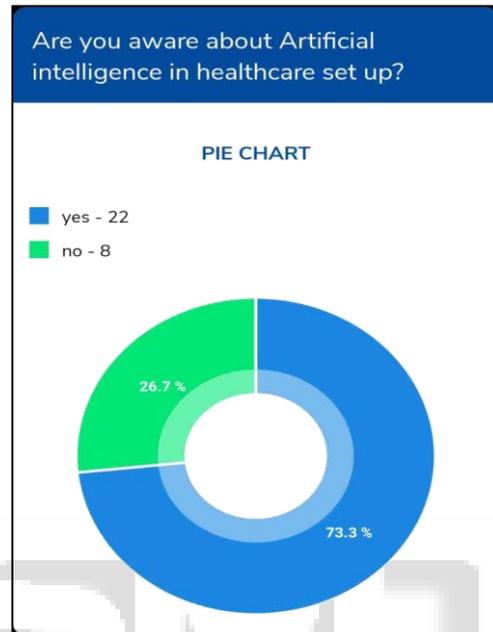
1) As we can see that the awareness of artificial intelligence is not up to the mark. Healthcare in India is emerging nowadays so that the way all new technologies and research are taking place in Indian healthcare scenario. But even then most of expertise says that there is some indication of grassroots level AI adoption today in India, yet the place of innovation around establishing a comprehensive AI strategies for the future isn't comparable to America or china today.
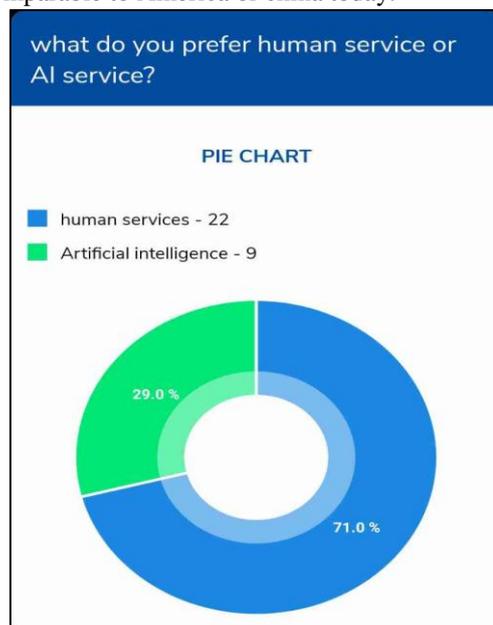
2) From this question we can know that how human being believe in artificial intelligence service.

By given data we easily understand that majority of people prefer human services rather than artificial intelligence services. Although many people are aware about the artificial intelligence, they prefer human services. This happens due to human tendency they may have trust on human services or they are not used to technical services.

Many of people feel that artificial intelligence have huge scope in Indian healthcare industry. Some of response from survey are followed as:

1) "it accurate diagnosis which lessens predictions and risk factor."
2) "India with level of social economic development the suite of AI technologies can be applied"
3) "if AI is implemented then the chances of risks taking place in the healthcare will be reduce"
4) "risk of life threatening dangers. It should be accurately optimised so that it can applied"

IV. RESEARCH LIMITATIONS

The following are the limitations with regards to AI in Indian Healthcare:

1) AI doesn't have the human brain capacity to deal with the unknown or the unpredictable.
2) AI system can only to be trained for specific task. They cannot train itself.
3) Training complications hinders the effectiveness of system.
4) Healthcare industry is still stuck to the last technology.
5) There is a fear of job replacement in the mind of human doctors.
6) Cost of training and development is a serious concern.

V. PRACTICAL IMPLICATIONS

AI is predicted to decrease medical cost as there will be more accuracy in diagnosis and better prediction in treatment as well as prevention of disease. Virtual nursing assistant are predicted to become more common and these will use AI to answer patient's questions and help reduce unnecessary hospital visits. AI can help in improving the efficiency of disease diagnosis and treatment which can be a positive impact on the reduction of mortality rate. The AI technology learns from past imaging reports such as X-Ray, MRI, etc. to assemble automatic diagnostic recommendations. The application of AI will lead to a real digital shift in traditional medical imaging, requiring AI and people to work together to meet the challenges of the healthcare industry.

VI. ORIGINALITY

It is true that AI is disrupting every industry but the advances made by healthcare industry through this technology is remarkable and focused. Artificial Intelligence is really beneficial for understanding what treatment protocols have worked well, it will help in improving productivity, it will basically automate those mechanical tasks and make job of healthcare providers simpler. Testing new drugs is a slow, expensive and manual process. Artificial Intelligence has the potential to disrupt every stage of the clinical trials process.

In general, AI is doing two things. It is giving a machine an ability to emulate a human-like perception and human-like judgement in a variety of different devices. Now, AI is at a point where it can perceive these features better than some cases than human being and experts themselves.

REFERENCES

[1] http://www.mckinsey.com/industries/healthcare-systems-and-services/ourinsights/the-big-data revolution-in-us-health-care
[2] https://www.forbes.com/sites/theapothecary/2016/08/19/artificial-intelligence-machine-learning-and-the-fda/#4aca26121aa1.
[3] http://www.japantimes.co.jp/news/2016/08/11/national/science-health/ibm-big-data-used-for-rapid-diagnosis-ofrare-leukemia-case-in-japan.
[4] https://www.nytimes.com/2016/10/17/technology/ ibm-is-counting-on-its-bet-on-watson-and-paying-big-money-for-it. Html.
[5] https://en.m.wikipedia.org/wiki/Artificial_intelligence_in_healthcare.
[6] https://www.forbes.com/sites/bernardmarr/2017/01/20/first-fda-approval-for-clinical-cloud-based-deep-learning-inhealthcare/#7a0ed8dc161c.
[7] https://www.ibm.com/developerworks/community/blogs/InsideSystemStorage/entry/ibm_watson_how_to_build_your_own_watson_jr_in_your_basement7?.
[8] https://www.fda.gov/downloads/drugs/guidance/ucm328691.pdf.
[9] https://www.chthealthcare.com/blog/artificial-intelligence-in-healthcare.
[10] https://emerj.com/ai-market-research/artificial-intelligence-in-india
[11] https://www.analyticsindiamag.com/how-microsoft-is-expanding-its-healthcare-initiative-in-india-using-ai