

Huge Untapped Potential of AI in Healthcare

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A lot has been spoken of the potential of machine learning (ML) and artificial intelligence (AI) to disrupt industries. AI is already seeing a wide application in industries such as Finance, Education, Robotics, Transportation, Security, and to an extent in healthcare.

Current Scenario:

Today in healthcare, ML and AI application have been seen mostly in diagnostics, research and new drug development. Popular use cases being image recognition of retinal scans to detect early signs of retinopathy and disease progression in diabetics and hypertensive patients. It also serves as an aid to recognizing abnormalities in ECG tests, X-rays, ultrasound, CT and MRI scans.

Pharmaceutical industries are leveraging AI to design newer drugs in cancer care and new drug applications are seeing records high. However, when it comes to clinical care, the application of AI is restricted to optimizing pathologists and radiologists' time to diagnosis and accuracy of diagnosis.

AI is yet to see wider application when it comes to clinical decision making in an OPD setting. What would it take to deliver the benefits of machine intelligence to a common man's day to day health, how could we reach a stage where we can take in to account the complete patient context, past history and response to treatment to personalize medical care?

Future of AI in Healthcare:

Unlocking the potential of AI depends on the availability, quantity, quality, and completeness of data that is used to train and design the AI algorithm. This would require a meticulous collection of structured health data through the state-mandated wide adoption of Electronic Medical Records. Then there is the challenge of interoperability of data across providers so that no data is lost and patients do not have to needlessly undergo the same tests again and again, just because their data was locked away in silos by providers whose databases don't talk to each other.

A step in the right direction is the proposed national digital health blueprint, which envisions the setting up of a centralized repository of medical data of all Indians linked to their Aadhaar, where people would own their data and all providers will be

mandated to plugin and share any medical data that they generate. This would create the right environment for technology to disrupt healthcare in ways never imagined before.

The health care of tomorrow could look very different. Imagine a day where the clothes and accessories we wear would continuously collect data from our sweat, breath and heartbeat. And, if any abnormal pattern is detected, an alert would be flashed and a doctor would be available at the click of a button for a remote-consult. Here, in most cases, the doctor would be able to suggest primary treatment much before the disease could progress. In more serious cases he would ask the patient to come in for an in-person visit where the intelligence would help the doctor by collecting a detailed history of the episode even before the patient is seen. The doctor would then examine the patient, order necessary tests which an algorithm could suggest, but most importantly provide the healing human touch and empathy that would alleviate the pain and agony of the patient. Once a clear diagnosis is reached, which the machine would aid in by taking into account all the past history, previous episodes of illness and response to treatment, a treatment plan based on the standard of care and what works best for the patient is suggested by the AI, which the doctor then approves and prescribes.

At a population level, epidemics could be detected much before they spread widely, superbugs could be avoided based on pooled data of response to treatment, the possibilities are limitless and only constrained by our imagination.

We have struggled to improve our Doctor: Population ratio, by supercharging the healthcare system with AI we could potentially increase the ability of the doctor to treat more patients more efficiently thus leapfrogging to the healthcare of the future.

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