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Market Analysis

Artificial Intelligence in Healthcare

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Artificial Intelligence (AI) in healthcare is the use of software algorithms in the analysis of complex medical data to approximate conclusions without direct human input. All over the world Healthcare is generating tremendous volume of structured & unstructured data through different IT systems & connected devices. Analysis of this data without support of computer algorithms is virtually impossible. With the advances in computer technology it has become possible to process this data and give a well-defined output to the end-user.

AI does this through machine learning algorithms, which can recognize patterns in behavior and create its own logic. Before AI systems can be deployed in healthcare applications, they need to be 'trained' through data that are generated from clinical activities, such as screening, diagnosis, treatment assignment and so on, so that they can learn similar groups of subjects, associations between subject features and outcomes of interest. These clinical data often exist in but not limited to the form of demographics, medical notes, electronic recordings from medical devices, physical examinations and clinical laboratory and images.

We look at some specific real world examples in medical world where AI is playing an increasingly important role in bringing the benefits of technology to improve patient care. These include algorithms for analysis of radiology images, robotic surgery, virtual assistants and clinical decision support systems. In their groundbreaking textbook Artificial Intelligence: A Modern Approach, authors Stuart Russell and Peter Norvig approach the question by unifying their work around the theme of intelligent agents in machines. With this in mind, AI is "the study of agents that receive percepts from the environment and perform actions." AGI is a machine with general intelligence and, much like a human being; it can apply that intelligence to solve any problem.

The major limitation in defining AI as simply "building machines that are intelligent" is that it doesn't actually explain what artificial intelligence is? What makes a machine intelligent? AGI, sometimes referred to as "Strong AI," is the kind of artificial intelligence we see in the movies, like the robots from West world or Data from Star Trek: The Next Generation.

In 2015, misdiagnosing illness and medical error accounted for 10% of all US deaths. In light of that, the promise of improving the diagnostic process is one of AI's most exciting healthcare applications.

Incomplete medical histories and large case-loads can lead to deadly human errors. Immune to those variables, AI can predict and diagnose disease at a faster rate than most medical professionals. In one study, for example, an AI model using algorithms and deep learning diagnosed breast cancer at a higher rate than 11 pathologists.

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