# The Power of AI in Healthcare

It is no doubt that the usage of natural language processing and machine learning has transformed the way healthcare is delivered. By analyzing and interpreting massive amounts of data, AI has helped doctors and researchers make better decisions. Decisions for diagnosis of diseases, management of clinical data or patient information, creation of pain management systems, the discovery of new drugs, and even treatment of ailments. AI has dug its roots so deep down in healthcare that there is a company, **Insilico**, that uses deep learning and AI to help escape the fate of aging. Having advanced to this level with technology still doesn't guarantee a full take-over of human-managed systems by artificial intelligence. Human input is the nucleus of AI.

In a global crisis such as the COVID-19, the most cardinal application of Artificial

Intelligence is to facilitate researchers to unearth a vaccine at the earliest. Perfect annotations are required to achieve this and it can only be provided by humans. Even the validation of discoveries needs the intervention of humans.
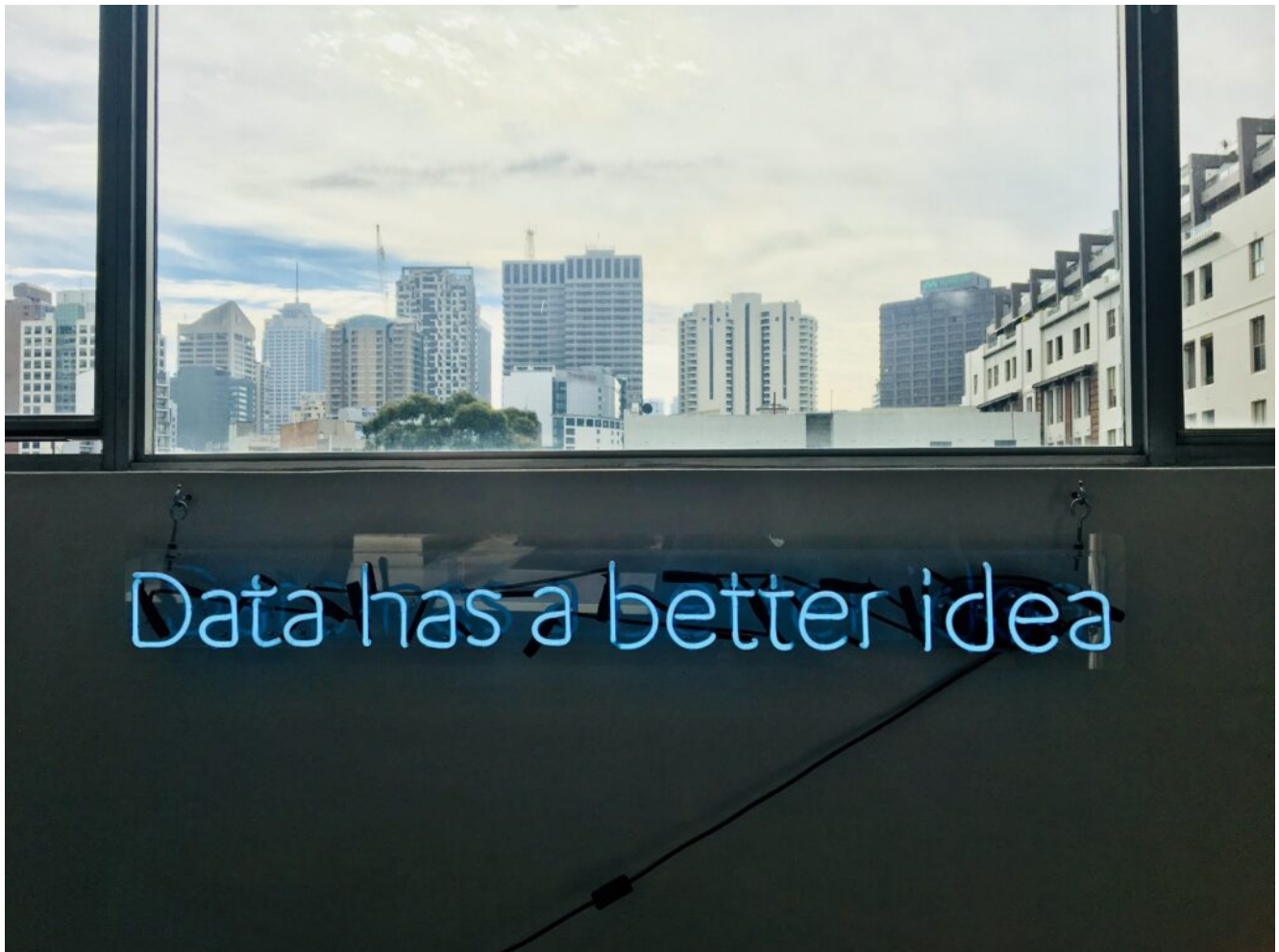

It is now clearly visible around the world that countries that were aware of COVID-19 were better prepared than others to tackle and control the spread of the pandemic. **Bluedot**, a Canadian AI startup that was born in the time of SARS, spotted COVID-19 nine days before the World Health Organization released a statement about the same. The company tracks, locates and conceptualizes the spread of infectious diseases using big data. This prediction is all based on the data that it collects and all this data is human recorded. The collection of high-quality data is one of the biggest challenges that face this industry and human support for this, is inevitable.

A recent **McKinsey** review predicted healthcare as one of the top 5 industries of growth for Artificial Intelligence. Automating and operationalizing health-care access, using big data to track the impact of a virus around the globe, effective screening systems are just some of the major AI involvements. It is said that AI is likely to be the best thing or the worst thing to happen to humanity. But one thing is sure, the path that it will follow will be determined by mankind.

Data Annotators: A Doctor's Best Friends
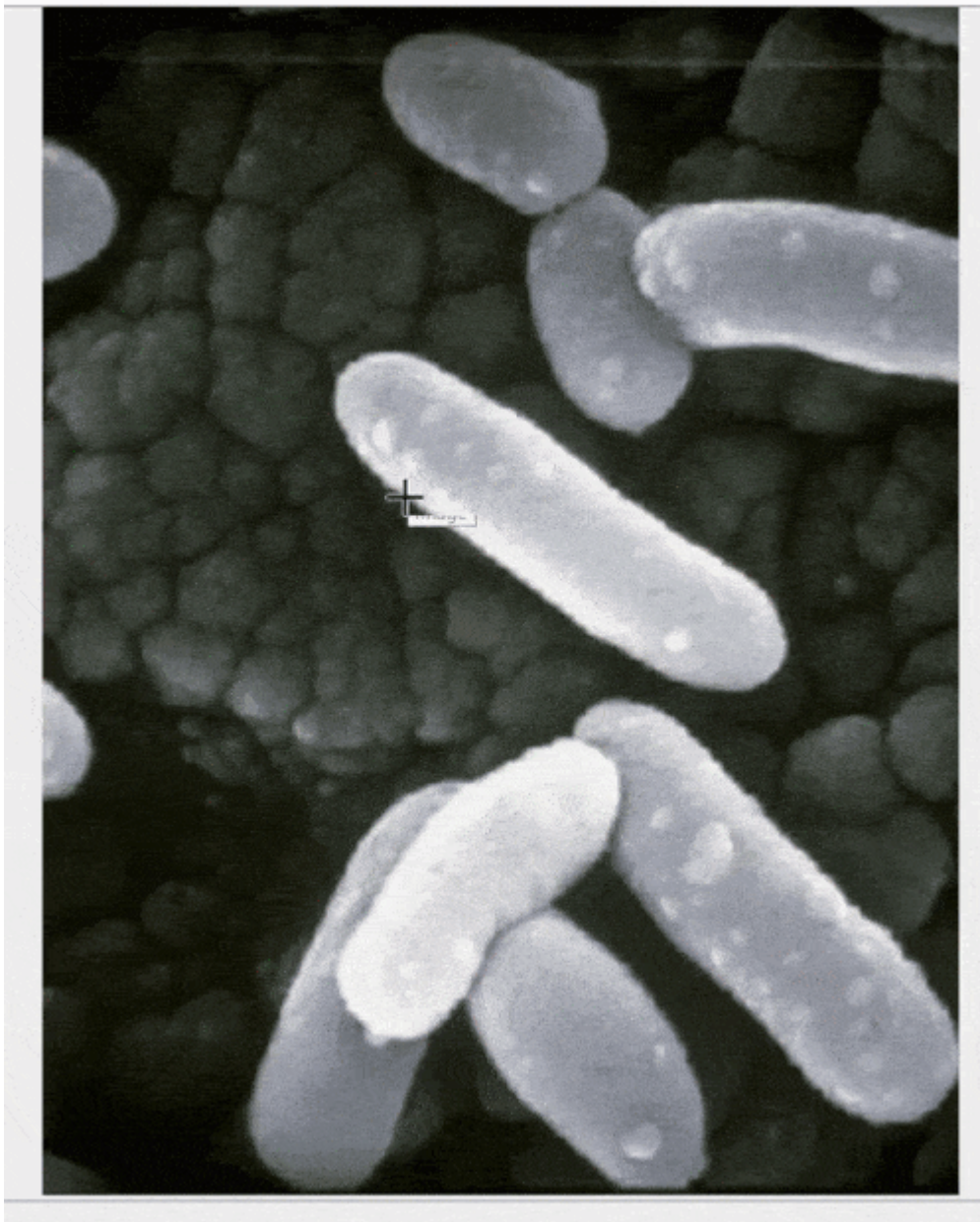
Imagine an algorithm that detects the presence of the COVID-19 virus through a lung scan? If this technology was readily available all over the world, then the way we dealt with this pandemic would have looked dramatically different. The good news is, this is a possibility in the near future as technology and artificial intelligence penetrate the healthcare world.

Medical images account for at least **90%** of all medical data today. They are by far the largest and fastest-growing data source in the healthcare industry and this voluminous amount of data poses equally large challenges for diagnosis. Having to deal with these data adds a tremendous amount of stress to medical workers,

patients, and healthcare systems. Well-designed technology can significantly reduce the time taken to arrive at diagnosis, improving health outcomes and in some cases, saving lives.

Diagnosis is a critical element in the care of many patients. Achieving quick and accurate diagnosis of disease is crucial to patient outcomes, and ensures that patients get timely access to the treatments they need. For physicians, a faster diagnosis means more time spent treating and caring for their patients. However, in hospitals around the world, medical diagnosis times can drag on as physicians struggle to acquire necessary testing and information. In these cases, Artificial Intelligence and Machine Learning can serve as a helpful tool. **Research** increasingly shows the many ways that artificial intelligence can aid doctors and healthcare systems throughout the patient cycle, from helping detect and classify diseases using medical scans, to aiding in the selection of a treatment course.

Enable Algorithms to Read Scans through Data Annotation

The Medical Futurist claims that data annotators are the unsung heroes of artificial intelligence development. Though drawing lines and deciphering pictures might not sound complex, the scale of data to be annotated and the lack of experts available to do so poses a tough challenge. But successful adoption of training algorithms allow physicians and other healthcare workers to focus on the servicing and caring rather than documenting.

IndiVillage has worked with multiple healthcare organizations looking to improve their AI technology to aid in accurate, timely diagnosis of diseases, such as annotating lungs in chest X-rays. In this case, we annotated medical scans of lung nodules to identify anomalies and feed the annotated data back into their system's algorithm. Using pixel segmentation to annotate lung scans, we effectively train their AI system. Our team of annotation experts quickly acquainted themselves

with the client's specific requirements and received training on the anatomy of the human lung and varying types of anomalies that arise in lung scans. Our team generally begins work by identifying abnormalities, looking at approximately 400 images over a three month period. Each image is studied and accurately labelled to create high-quality training data to feed the client's algorithms.
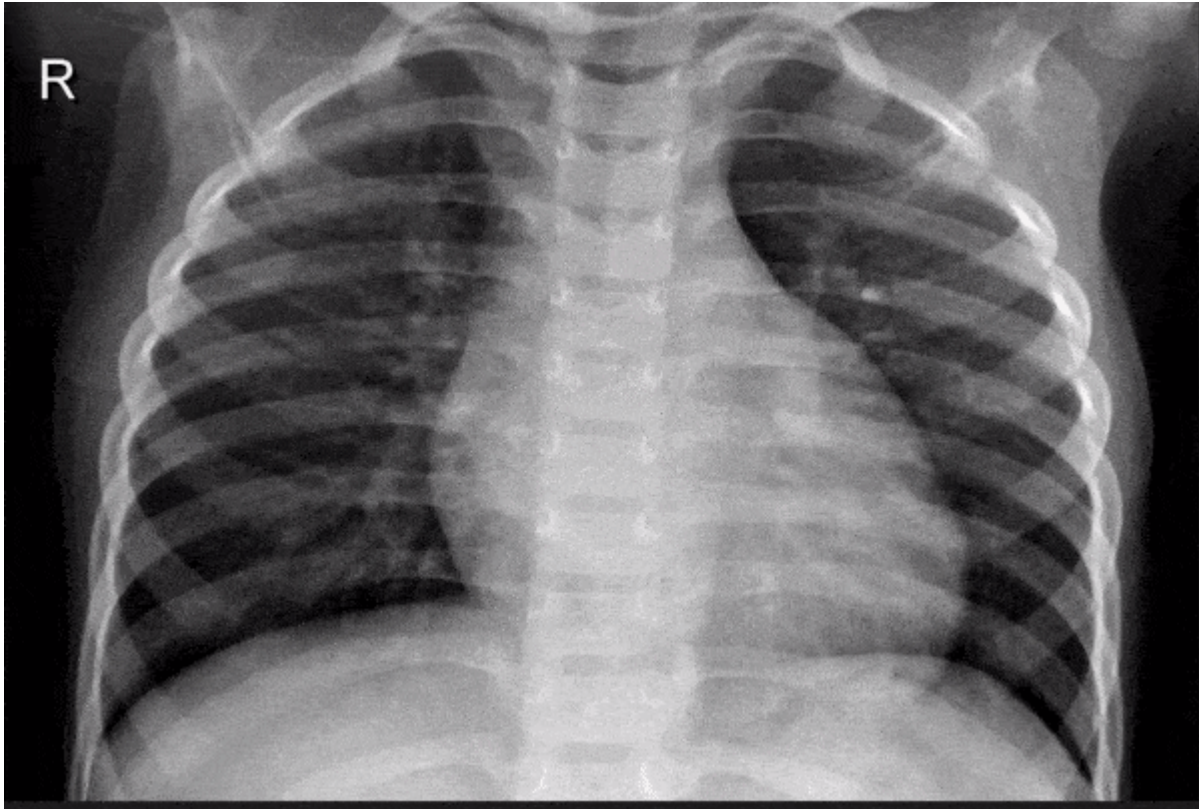
IndiVillage's efforts have aided in training data that the client utilized in their AI technology for faster detection of pulmonary abnormalities, thus reducing overall diagnosis time. This has allowed doctors to focus more on treating the patients than being absorbed in reading a multitude of reports.

Five reasons to integrate AI into your Healthcare Business Now

Artificial Intelligence has now set the foundation for future growth in almost all industries, and healthcare is no different. Through Computer Vision and Machine Learning, algorithms are being trained to execute to perfection – annotation of images, videos, text, and data. But the delicacy of this field and its direct influence on human life, demands faultless performance. While there is constant research undergoing with these technologies, the best way to adapt to AI is to ease into practical usage which is done by taking small steps before establishing it in a large manner. Additionally, training algorithms with continuous data is what helps attain accurate automation, and hence, starting early is always

advantageous. Read along to find five reasons why you should consider integrating Artificial Intelligence into your healthcare business now!

End To Endless Documentation

An alarming fact is that **86%** of the mistakes made in the healthcare industry are administrative. If that isn't unnerving, another study by **techceocouncil** stated that three out of every ten tests are reordered because the results cannot be found and patient charts are missing 30% of the time. The stress on proper maintenance of electronic health records could not have a higher priority. AI has the capability to handle unprecedented amounts of data in real-time while eradicating the possibility of human errors and also reducing the manpower needed to maintain these resources.

Medical Image Annotation

Enabling algorithms to read scans through data annotation is one of the most commonly seen applications of Artificial Intelligence. CT Scans, Ultrasound, MRIs, and other scans are labeled by annotators for machine learning training. It helps in the early detection of anomalies in scans, speeding up the process to recovery, and allowing more time for patient care.

AI-Assisted Diagnosis

The COVID-19 pandemic has given rise to remote operation of businesses and a world of opportunities in this arena of the healthcare sector. Providing remote access to 24/7 service on mobile phones with questions from patients establishes a groundwork of treatment. **Intelligent Virtual Assistant and Medical Virtual Assistant** collect details of patients such as patient history, insurance details, demographic information, and this helps increase patient engagement.

Intelligent Medical Machinery

Robot-assisted surgeries were invented two decades ago and since then have been helping surgeons perform complex procedures with precision and accuracy. While smart devices are all around us in daily life, the impact of the same in healthcare is tremendous. An asthma monitoring machine, an AI-powered insulin pump, and an AI drill for ortho are some existing **examples.** It would be easier to start with smaller equipment and training the staff to be able to work on those before moving to high stake machinery.
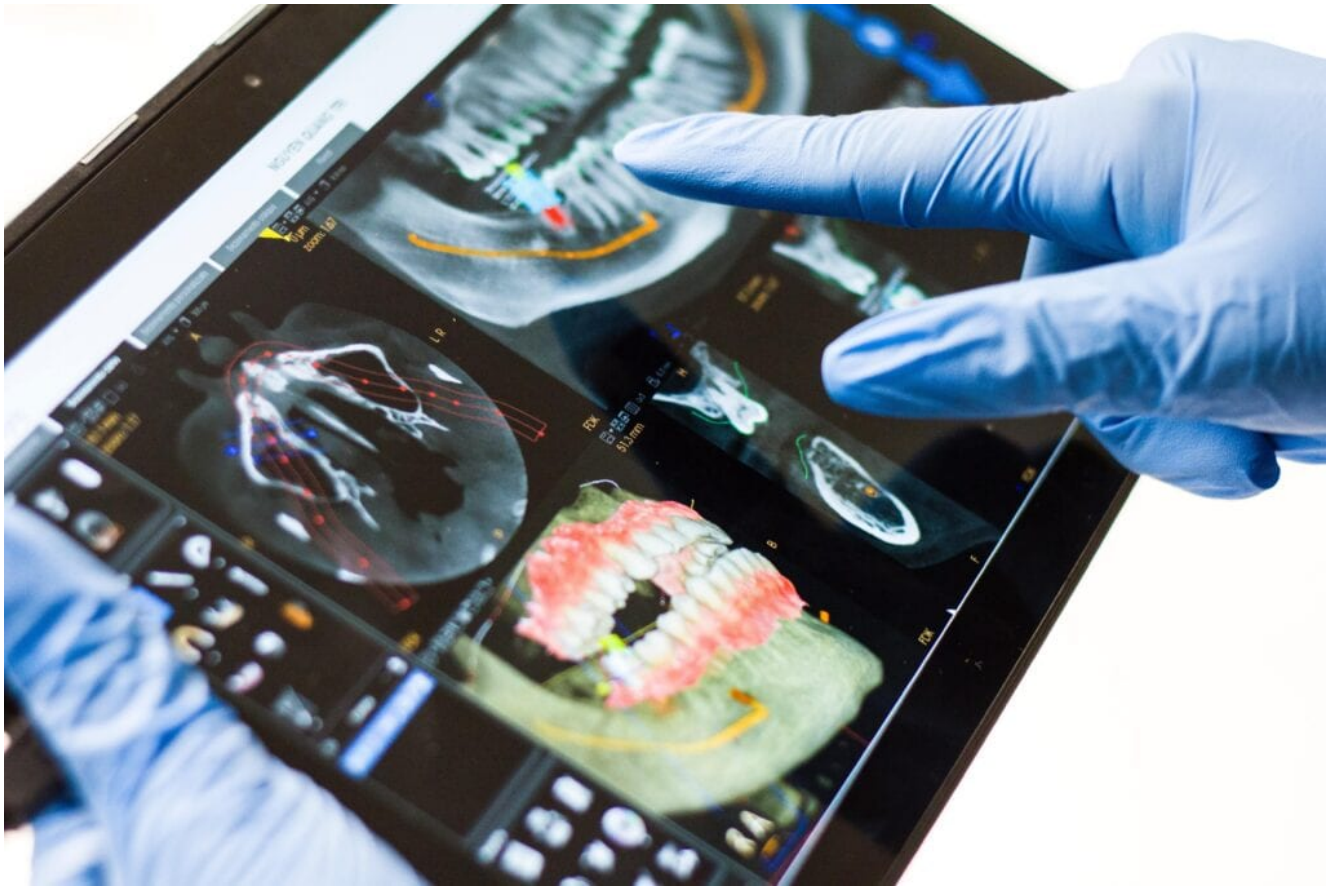
Save Time and Cut Costs in the Long Run

Both for the patient and the doctor, the adoption of AI in healthcare would eventually lead to affordability and efficiency after an initial investment. Predictive medical care, providing custom drug treatment, the discovery of drugs, automation of humdrum documentation, and access to remote delivery of medical assistance would create well-oiled healthcare providing organizations.

Conclusion

The healthcare sector is being revolutionized by Artificial Intelligence, and only the ones who hop on the train will be able to reach the destination. In some form or another, AI is already a part of your business but what more can you do to ensure a stronger influence? If you'd like to know more, talk to us.