Healthcare Use Case

USING PIXEL ANNOTATION TO IDENTIFY ANOMALIES IN LUNG NODULE IMAGES

Utsav Vijendra, 27th October 2020

SUMMARY

Medical diagnosis can add tremendous amounts of stress to medical workers, patients, and healthcare systems. Well-designed technology can significantly reduce the time to arrive at diagnosis, improving health outcomes and in some cases saving lives.

Our teams have experience working across various healthcare use cases — from DNA mapping to wrist fracture annotations — and are skilled at training algorithms for AI-enabled healthcare organizations.

In this case, we annotated scans of lung nodules for abnormalities using pixel segmentation for a client looking to improve their system for pulmonary diagnosis. These annotations helped train their AI technology to diagnose lung diseases quickly and accurately.

CHALLENGE

Diagnosis is a critical element in the care of many patients. Achieving a 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, AI technology 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.

Our client was a healthcare organization looking to improve their AI technology to aid in accurate, timely diagnosis of lung diseases. They required the ability to annotate medical scans of lung nodules to identify anomalies and feed the annotated data back into their system's algorithm.

SOLUTION

IndiVillage used pixel segmentation to annotate the client's scans and 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. The team soon began work identifying abnormalities, looking at approximately 400 images over a three month period. Each image was studied and accurately labelled to create high-quality training data to feed the client's algorithms.

RESULTS

With the aid of IndiVillage-generated training data, the client was able to utilize their AI technology for faster detection of pulmonary abnormalities and reduced diagnosis time.

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