CASE STUDY

Intel, Winning Health and AMAX jointly optimize AI-aided medical system to empower smart healthcare

As one of main application fields, the medical and healthcare industry has a soaring demand for artificial intelligence (AI) technology and is increasing investment in it. To promote "healthcare + AI" and help to build a smart healthcare ecosystem, Winning Health Technology Group Co., Ltd. (hereinafter referred to as "Winning Health"), AMAX and Intel have made extensive cooperation in AI application. The three parties have successfully innovated and optimized the application of AI-assisted devices in healthcare scenarios, further driving AI application in the medical industry.

"AI + medical imaging" is one of the latest collaboration outcomes of Winning Health, AMAX, and Intel. Based on AMAX Deep Learning All-In-One, which carries 2nd Gen Intel® Xeon® Scalable processor and OpenVINO™ toolkit, Winning Health launched a medical imaging AI solution to assist with the diagnosis of 20+ common abnormal images. These diagnostic results can be presented as preliminary medical reports to reduce doctors' repeated manual labor. At the radiologist's workstation and in clinician's report reading system, they can also promptly remind doctors of critical patients' conditions to avoid treatment delay.

Challenge: How to empower medical imaging diagnosis with AI

With the gradual evolution of medical imaging technology and continuous introduction of medical imaging devices, medical institutions are witnessing an explosive growth of medical imaging data. This trend has brought a heavy workload of medical image reading. Fortunately, AI can help solve this problem. With AI, medical institutions can effectively improve diagnostic accuracy and efficiency, shorten waiting time, and reduce treatment cost.

With regard to AI-assisted medical imaging solution, in addition to the development of deep learning algorithm, the construction of infrastructure platform is also an important factor worth considering.

First, among the options of deep learning infrastructure, traditional deep learning applications often choose GPU for training. Although GPU can deliver the required model inference speed, medical institutions have to purchase additional dedicated-purpose GPU servers. This results in extra costs. Therefore, how to harness existing computing resources for deep learning deployment is an important subject.

Second, although the threshold for deep learning has lowered to some extent, specialists are still indispensable for establishing and maintaining deep learning environment. AI applications, such as AI-aided diagnostic imaging of pulmonary nodules, involve many optional brands and models of software, basic hardware, and dependent packages. It is difficult to choose from them as different tasks require different resources. In addition, the deployment of deep learning system architecture is relatively complicated. It is not easy for the architecture to adapt to various frameworks and models, and its operation and maintenance are also complicated.

Solution: Winning Health AI Medical Imaging solution based on AMAX Deep Learning All-In-One

To help medical institutions promote AI technology in medical imaging applications and deliver AI capability for scenarios like AI-aided diagnostic imaging of pulmonary nodules, Winning Health has built the infrastructure platform with AMAX Deep Learning All-In-One, which is equipped with 2nd Gen Intel Xeon Scalable processor and OpenVINO toolkit.

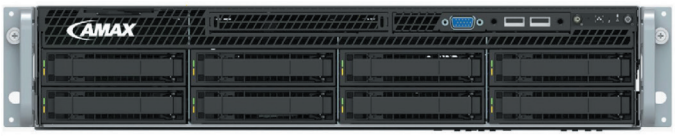

Figure 1: AMAX Deep Learning All-In-One

AMAX Deep Learning All-In-One employs the concept of software and hardware integration, and deeply integrates machine learning platform with traditional hardware. Leveraging the holistic scheduling of this deep learning platform, AMAX Deep Learning All-In-One features fine-grained authority management and control, safe and efficient data management, and comprehensive and delicate monitoring management capabilities, which can help users maximize resource utilization.