

## Korea makes medical imaging smarter with big data & deep learning

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**The research team plans to modify the deep learning model to improve the accuracy of aortic plaque analysis**



The Korea Institute of Machinery and Materials (KIMM), an institution under the jurisdiction of the Ministry of Science and ICT, has developed technology that improves both the speed and accuracy of disease diagnosis by combining medical imaging diagnostic equipment with the machine learning technology of mechanical equipment.

Led by Dr. Jong-won Park, head of the Department of Reliability Assessment at KIMM, the research team applied big data deep learning technology that has been used to diagnose the reliability of mechanical parts and equipment to ultrasound imaging equipment to develop diagnostic imaging assistance technology using machine learning. Such technology utilizes a GPU to achieve a required diagnosis time of 30 minutes, with an accuracy of 80%.

In looking for ways to combine machine learning techniques used for mechanical parts and equipment reliability inspection with aspects of the medical field, the research team cooperated with the cardiology research team at Daejeon St. Mary's Hospital. Together, they conducted academic research using artificial intelligence deep learning to develop a cardiovascular event prediction model through automated analysis of aortic atherosclerotic plaque found in patients suffering from cerebral infarction. The study was successful in confirming the effectiveness of such methods.

The research team plans to modify the deep learning model to improve the accuracy of aortic plaque analysis. In the future, the team also plans to expand upon this technology, so that it that can be used along with imaging data for diagnosing faults and failures in the establishment of virtual engineering platforms