

# Plenary Lecture I

## Application of Artificial Intelligence in Medical Field

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The format of medical data is largely divided into text, image, and waveform. Among them, since the image data was built as big data by PACS in the hospital, artificial intelligence-based analysis of image data was most actively carried out. Various types of medical data are publicly available and can be used for research.

There are various fields of application of AI technology in medicine, such as diagnostic imaging, genetic diagnosis, electrodiagnosis, clinical laboratory, and mass screening. The leading 10 disease types considered in the artificial intelligence, such as neoplasms, nervous, cardiovascular, urogenital, pregnancy, digestive, respiratory, skin, endocrine, and nutritional systems.

The main types of machine learning and deep learning algorithms used in medicine are support vector machine, neural network (deep, convolutional, recurrent), logistic regression, Random Forest, linear regression, Naïve Bayes, nearest neighbor, decision tree, hidden Markov etc.

Dozens of medical AI algorithms have been approved by the FDA and the KFDA, and they are being clinically applied to patients. However, to apply the real data to medical treatment in hospitals, it is not enough to simply evaluate the accuracy of the algorithm, and it is necessary to verify it with internal and external data. Technical performance, clinical performance, and clinical utility are all indicators of efficacy of different levels and characters.