

## Cutting edge of AI support in medical image diagnosis



Hiroshi Fujita, PhD  
Research Professor  
IEICE Fellow  
Gifu University  
Japan

**Abstract:** Today, it is the third artificial intelligence (AI) boom, and the medical field is no exception. In particular, the “deep learning” technology in AI, which is a type of “machine learning” method, in which computers learn by themselves (learning features and rules), has reached a level where the accuracy of image recognition exceeds that of humans. Computer-aided detection/diagnosis for medical images, so-called CAD, is rapidly entering the mainstream of practical medicine. It has already become a part of the routine clinical work especially for the detection of breast cancer with mammograms (breast imaging), in which the computer output is used as a “second opinion” in assisting physician’s image interpretation. Recent powerful AI technology including deep learning advances the development and improving performance of CAD to the next stage, sometimes called as AI-CAD. In this talk, the state-of-the-art of AI-CAD including COVID-19 image diagnosis and some issues to be solved will be reviewed and discussed.

**References:** H.Fujita, “AI-based computer-aided diagnosis (AI-CAD): The latest review to read first,” *Radiological Physics and Technology*, vol.13, no.1, pp.6-19, 202; G.Lee and H.Fujita (Eds.), *Deep Learning in Medical Image Analysis: Challenges and Applications*, Springer, 2020.