BioSpectrum
the business of Bio & Health Sciences
ASIA EDITION

Japanese researchers use AI to design novel endoscopy

July 15, 2019 | News

Early gastric cancer endoscopic diagnosis system using artificial intelligence



Researchers at Okayama University have developed an early gastric cancer endoscopic diagnosis system using artificial intelligence (AI). The details were presented at the Congress of the Japan Gastroenterological Endoscopy Society (JGES), May 31 – June 2, 2019, Tokyo.

First the prototype of the system to obtain the depth of early gastric cancer was constructed with GoogLeNet to match purpose (metastatic learning) by using the image recognition ability of CNN (Convolutional Neural Network) published by Google on numerical analysis software MATLAB.

Next, the researchers used the ResNet, which is a 152-layer convolutional neural network, to conduct intramucosal endoscopic resection among patients treated for early gastric cancer at Okayama University Hospital.

Using endoscopic images of 100 cancers (M group) and 50 submucosal invasion cancers (SM-ESD group) and 50 submucosal invasion cancers (SM-OPE group) who had undergone surgery from the beginning, the researchers built the AI system and verified its diagnostic accuracy.

The diagnostic ability of individual doctors varies, and with increases in the number of medical services in the future, there is concern about the possibility of oversight of cancer and increases in misdiagnosis. If automatic diagnosis of digestive tract endoscope images by AI is realized, then 'automated diagnosis logic' will be added to endoscope technology for real time diagnosis.