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Application of convolutional neural networks for computer-aided detection and diagnosis in gastrointestinal pathology: A simplified exposition for an endoscopist

Viswanath YKS *et al.* Convolution neural network in identifying GI pathology at endoscopy

Yirupaiahgari KS Viswanath, Sagar Vaze, Richie Bird

Abstract

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1. Gastrointest Endosc. 2019 Apr;89(4):806-815.e1. doi: 10.1016/j.gie.2018.11.011. Epub 2018 Nov 16.

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Application of convolutional neural network in the diagnosis of the invasion depth of gastric cancer based on conventional endoscopy Author links open overlay panel Yan Zhu MD 1 * Qiu-Cheng Wang MCS 2 * Mei-Dong Xu MD, PhD 1 Zhen Zhang MD 1 Jing Cheng MD 1 Yun-Shi Zhong MD, PhD 1 Yi-Qun Zhang MD, PhD 1 Wei-Feng Chen MD, PhD 1 Li-Qing Yao MD ...

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However, despite significant advances, automatic polyp detection in real time is still an unsolved problem. In this paper, we report on a convolutional neural network (CNN) for polyp detection that is constructed based on Single Shot MultiBox Detector (SSD) architecture and which we call SSD for Gastric Polyps (SSD-GPNet).

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A Japanese group recently reported a pilot study using DL with CNN on detection mainly of early squamous cell carcinoma with a sensitivity of 98%. 14 Ebigo et al 16 used computer-aided diagnosis in the evaluation of early esophageal adenocarcinoma in BE. This system showed sensitivity and specificity of 97% and 88% and was trained on only 148 ...

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Computer-aided diagnosis (CAD) uses the advances in artificial intelligence to offer a promising avenue to accurately characterize colorectal lesions in vivo and in real-time. More importantly, it could theoretically make an accurate prediction regardless of which center or endoscopist uses it.

Author: Leonardo Zorron Cheng Tao Pu, Leona...

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