In the field of medicine, artificial intelligence(AI) based computer-aided diagnosis(CAD) tools analyse and identify of various types of diseases. CAD tools analyze medical images with the help of trained deep learning algorithms. Deep learning algorithms extract optimal representations of training data and analyze medical images based on those extracted representations.

Google search was used to get familiar with the topic and IEEE Xplore and Google scholar was used to find the related papers. Then the papers were narrowed down by using keywords like “GI tract”,”cad”,”supervised learning” and other keywords of our topic.

1)

Y. Mori, S. E. Kudo, H. E. N. Mohmed, M. Misawa, N. Ogata, H. Itoh, M. Oda, and K. Mori, “Artificial intelligence and upper gastrointestinal endoscopy: Current status and future perspective,” Digestive Endoscopy, vol. 31, no. 4, pp. 378–388, 2019.

This study summarizes current publications relating to CAD for upper gastrointestinal endoscopy from the perspective of endoscopists. The methodology used to gather information was a qualitative review of the literature on CAD for gastroscopy identified 29 relevant studies (16 were physician‐initiated and 13 were engineer‐initiated). In the present review, they introduce the current status of this research area by describing 16 physician‐initiated studies and discuss future perspectives.The study was divided in to major four parts.

Those are identification of dysplasia in BE, identification of esophageal squamous cell carcinoma, detection of gastric cancers, recognition of Helicobacter pylori infection. This also describes about deep learning, and future directions of this field.

This paper concluded that if larger learning samples and well‐designed prospective trials were provided, this technology could be implemented in clinical practice in the near future. This study will provide relevant data for my literature review on Artificial Intelligence(AI) based Computer Aided Diagnosis(CAD) for Gastrointestinal(GI) Tract Disease Diagnosis.

2)

D. Iakovidis, S. Georgakopoulos, M. Vasilakakis, A. Koulaouzidis and V. Plagianakos, "Detecting and Locating Gastrointestinal Anomalies Using Deep Learning and Iterative Cluster Unification", IEEE Transactions on Medical Imaging, vol. 37, no. 10, pp. 2196-2210, 2018. Available: 10.1109/tmi.2018.2837002.

This study concludes on diagnosis of Gastrointestinal Anomalies Using Deep learning computer models.Introduced methodology is used for detect and localize GI anomalies in endoscopic videos.This is implemented using weakly annotated images,not using pixel level annotations.The study was divided into three parts which are categorizing endoscopic images to infected and uninfected categories,mapping them to deep learning models and localizing GI anomalies.

This method is cheaper than the methods which were implemented before because this doesn’t require detailed images set as training images.Unsupervised machine learning technologies are used to localize the images.This shows the future direction of the diagnosis using deep learning models. The research concludes that this method is more effective than patch based CNN based approaches.GI anomalies are not only diagnosed but also localized by an efficient way and that is the key success of this research than the other methodologies. This discovery is very useful for my literature review on Artificial Intelligence(AI) based Computer Aided Diagnosis(CAD) for Gastrointestinal(GI) Tract Disease Diagnosis.

3)

T. Lange, P. Halvorsen and M. Riegler, "Methodology to develop machine learning algorithms to improve performance in gastrointestinal endoscopy,” World Journal of Gastroenterology, vol. 24, no. 45, pp. 5057-5062, 2018. Available: 10.3748/wjg.v24.i45.5057.

This study points out some of the challenges in the development of computer-aided diagnosis systems and give suggestions for the development of future CAD systems. The methodology used to gather information was a quantitative review of the literature on CAD for gastroscopy. In the paper they describe how the machine learning has been used in the endoscopy area. They provide several examples related to those. These examples are based on different technologies. Then this paper state about the images data used for training the model. Overfitting, quality of dataset is discussed. A method of system assessment is discussed. Conclusion is following the mentioned methods in article will help in producing the best possible and the most comparable results. Also there needs to be research, development, and clinical testing before the models developed by various developers are put into practice. This study will provide relevant data for my literature review on Artificial Intelligence(AI) based Computer Aided Diagnosis(CAD) for Gastrointestinal(GI) Tract Disease Diagnosis.

4)

M. Alagappan, J. Brown, Y. Mori and T. Berzin, "Artificial Intelligence(AI) based Computer Aided Diagnosis(CAD) for Gastrointestinal(GI) Tract Disease Diagnosis.

,'' World Journal of Gastrointestinal Endoscopy, vol. 10, no. 10, pp. 239-249, 2018. Available: 10.4253/wjge.v10.i10.239.

These researchers have done tremendous work on generating an abstract methodology to use AI in medical image diagnosing. CAD systems are the main research area of this research. To detect potential benefits of using CAD systems, how to improve the use of CAD systems are some key areas they studied.Artificial Intelligence has the potential to speed up the accuracy of GI anomalies detecting.Study says there are several areas which will be developed in the future. Researchers have proved that how artificial intelligence is important in Gastroenterology which helps my literature review on this key area.

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