

# Detection of Colon Cancer using Deep Learning Techniques

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**Abstract:** Cancer is the most common disease in the world. Cancer is a disease in which some somatic cells grow out of control and spread to other parts of the body. Among the types of cancer, colon cancer is the third most frequent cancer in the world. Polyps which are developed inside the human body parts are the most common cancer cause. These polyps are initially benign, they later grow to become cancerous over time, thus early detection and screening are critical for the patients. Artificial Intelligence is being used to diagnose cancer and deep learning techniques are used for prediction. The motive of the paper is to propose a model to implement a deep learning model like Convolution Neural Network (CNN), and InceptionV2 Network to predict cancer and non-cancerous. The model helps in the classification framework and prediction of two types of colon cancer: they are colon adenocarcinoma and colon benign cancer. The model is deployed for the histopathological image data set, along with the deep learning model

**Keywords:** Inception V2 Network; colon cancer; colon adenocarcinoma and colon benign; machine learning, and CNN

## REFERENCES

- [1] Xiaoyong Yang, Qianxing Wei, Changhe Zhang, Kaibo Zhou, Li Kong and Weiwei Jiang "Colon Polyp Detection and Segmentation based on improved MRCNN" IEEE Transactions on Instrumentation and Measurement volume: 70,2021.
- [2] LeCun, Y., Bottou, L., Bengio, Y. and Haffner, P., 1998. Gradient-based learning applied to document recognition. Proceedings of the IEEE, 86(11), pp. 2278-2324.
- [3] DevviSarwinda; AlhadiBustamam; Radifa H. Paradisa; Terry Argyadiva; WibowoMangunwardoyo "Analysis of Deep Feature Extraction for Colorectal Cancer Detection" 4th International Conference on Informatics and Computational Sciences (ICICoS),2020.
- [4] R. Selvaraju, M. Cogswell, A. Das, R. Vedantam, D. Parikh and D. Batra, "GradCAM: Visual Explanations from Deep Networks via Gradient-Based Localization," 2017 IEEE International Conference on Computer Vision (ICCV), 2017, pp. 618-626, doi:10.1109/ICCV.2017.74.AIDS Res. Ther., vol. 17, no. 1, pp. 1-13, 2020.
- [5] F. Bray and I. Soerjomataram, "The changing global burden of cancer: transitions in human development and implications for cancer prevention and control," in Cancer: disease control priorities, vol. 3, Washington: World Bank Publications, 2015, pp. 23-44.
- [6] S. Rathore, M. Hussain, A. Ali, A. Khan, A recent survey on colon cancer detection techniques, IEEE/ACM Trans.Comput. Biol. Bioinform. 10 (2013) 545563.
- [7] E. Ozdemir, C. Sokmensuer, and C.G. Demir, A Resampling- Based Markovian Model for Automated Colon Cancer Diagnosis, IEEE Trans. Biomedical Eng., vol. 59, no. 1, pp. 281-289, Jan. 2012.
- [8] A.C. Simsek et al., Multilevel Segmentation of Histopathological Images Using Cooccurrence of Tissue Object, IEEE Trans. Biomedical Eng., vol. 59, no. 6, pp. 1681-1690, June 2012.
- [9] E. Ozdemir and C.G. Demir, A Hybrid Classification Model for Digital Pathology Using Structural and Statistical Pattern Recognition, IEEE Trans. Medical Imaging, vol. 32, no. 2, pp. 474-483, Feb. 2013.