

Recognizing the risk of endometriosis using machine learning and Deep learning techniques

Visalaxi.S, Sudalaimuthu.T

S Visalaxi, T Sudalaimuthu. Recognizing the risk of endometriosis using machine learning and Deep learning techniques. *J Genet Disord Genet Med.* 2022;6(3):47.

INTRODUCTION

Endometriosis is a disorder that affects women of fertility age group. The endometriosis is a recursive problem that affects the women mentally and physically. A lesion-like structure in the uterus that comes out for every periodical cycle. If the lesion does not shed out and it spreads across multiple regions then it leads to endometriosis. There exist various stages of endometriosis based on the location and severity of endometriosis. That includes a) Mild endometriosis along the uterus, b) Moderate endometriosis (Ovarian endometriosis), c) Severe endometriosis (Peritoneum endometriosis), and d) Deep infiltrating endometriosis. The methods for predicting endometriosis includes transvaginal ultra sound, Magnetic resonance imaging, CT scan and Laparoscopic procedures. The laparoscopic procedure is the standardised procedure used by medical practioner for identifying the exact location of endometriosis. Along with medical practioner, Artificial intelligence plays a major role in recognition of various medical problems. Machine learning and Deep learning are the two branches of artificial intelligence used for recognition. The deep learning algorithm “Convolution neural network and their architectures” analyse various medical images for prediction of diseases. The CNN architectures outperforms well for recognising endometriosis using laparoscopic images [1,2].The various architectures of CNN includes resnet50, VGG16. Here ResNet50 performs well for predicting the lesion as endometriosis or not using laparoscopic images. Based on the prediction, the external and internal factors associated with endometriosis were identified [3]. The external factors include severe abdominal pain, pelvic pressure, uterine bleeding etc. The internal factors includes adnexal mass, lesion size and lesion colour from the laparoscopic images. These factors were analysed for prediction of endometriosis. To identify the exact location, segmentation was involved. The deep learning technique known as UNet was used for segmenting the endometriosis as ovarian endometriosis, peritoneum endometriosis, and deep

infiltrating endometriosis [4].

REFERENCES

1. Leibetseder S, Kletz K, Schoeffmann S. et al. [GLEND: Gynecologic Laparoscopy Endometriosis Dataset](#). In Proceedings of the 26th International Conference on Multimedia Modeling, MMM. Springer, Cham2020;11962:439-50
[Google Scholar](#), [CrossRef](#)
2. Visalaxi S, Muthu T S. [Automated prediction of endometriosis using deep learning](#). *Int J Nonlinear Anal Appl.* 2021;12(2):2403-16.
[Google Scholar](#), [CrossRef](#)
3. Sankaravadeivel V, Thalavaipillai, S. [Symptoms based endometriosis prediction using machine learning](#). *Bulletin of Electrical Engineering and Informatics.*2021;10(6):3102-9.
[Google Scholar](#), [CrossRef](#)
4. Visalaxi S, Sudalaimuthu T. [Automated segmentation of endometriosis using transfer learning technique](#). *F1000Research.* 2022;28(11):360
[Google Scholar](#), [CrossRef](#)

Department of Computer Science and Engineering, Hindustan Institute of Technology and Science Chennai India,

Correspondence: Visalaxi.S, Department of Computer Science and Engineering, Hindustan Institute of Technology and Science Chennai India, E-mail geneticmedres@esciencejournal.org

Received: 25-May-2022, Manuscript No. puljgdgm-22-4995; Editor assigned: 28-May-2022, PreQC No. puljgdgm-22-4995; Reviewed: 12-June-2022(PQ), QC No. puljgdgm-22-4995 (Q); Revised: 15-June-2022, Manuscript No. puljgdgm-22-4995 (R); Published: 22-June-2022, DOI:10.37532/Puljgdgm.6(3).47.



This open-access article is distributed under the terms of the Creative Commons Attribution Non-Commercial License (CC BY-NC) (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits reuse, distribution and reproduction of the article, provided that the original work is properly cited and the reuse is restricted to noncommercial purposes. For commercial reuse, contact reprints@pulsus.com