IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 7, May 2023

Pneumonia Disease Detection using CNN

Shreya Gupta, Satyendra Kushwaha, Shaiwal Ranjan Rai, Nikhil Anand, Dr. H.R Singh
Greater Noida Institute of Technology, Greater Noida, Uttar Pradesh, India

Abstract: *Pneumonia is a potentially fatal lung disease brought on by an infection that is bacterial or viral. It may be life- threatening if not treated promptly, thus early detection of pneumonia is critical.*
The article emphasizes the need of early identification of pneumonia, a potentially fatal lung condition resulting from a viral or bacterial illness. It suggests an automated approach for diagnosing digital x-ray images for diagnosing bacterial and viral pneumonia, as well as a thorough report on the methods employed. The scientists trained a dataset 5247 chest x-ray images, including bacterial, viral, and regular chest x- ray images using four pre-trained Convolutional Neural Networks (CNNs). The study provides three categorization systems with good learning accuracy rates. normal vs. pneumonia, bacterial vs. viral pneumonia, and normal, bacterial, and viral pneumonia, respectively, of 98%, 95%, and 93.3%. The findings of this study have important implications for faster and more accurate pneumonia diagnosis by radiologists, as well as for swift pneumonia sufferers are screened at airports

Keywords: chest X-ray, viral and pneumonia caused by bacteria, deep learning.

REFERENCES

[1].Majadra, P. Manukyan and T. Barracker, "Comparison and Evaluation of CNN Architectures for Classification of Covid-19 and Pneumonia," 2021 Sixth International Conference on Image Information Processing(ICIIP),2021,pp.110-115,doi:10.1109/ICIIP53038.2021.9702676.
[2]. D. Varshni, K. Thakral, L. Agarwal, R. Nijhawan and A. Mittal, "Pneumonia Detection Using CNN based Feature Extraction," 2019 IEEE International Conference on Electrical, Computer and Communication Technologies (ICECCT), 2019, pp. 1-7, doi: 10.1109/ICECCT.2019
[3]. Kareem, A., Liu, H., & Sant, P. (2022). Review on Pneumonia Image Detection: A Machine Learning Approach. Human-Centric Intelligent Systems, 1-13.
[4]. GM, H., Gourisaria, M. K., Rautaray, S. S., & Pandey, M. A. N. J. U. S. H. A. (2021). Pneumonia detection using CNN through chest X-ray. Journal of Engineering Science and Technology (JESTEC), 16(1), 861-876.
[5]. Gayathri, J. L., Abraham, B., Sujarani, M. S., & Nair, M. S. (2022). A computer-aided diagnosis system for the classification of COVID-19 and non-COVID19 pneumonia on chest X-ray images by integrating CNN with sparse autoencoder and feed forward neural network. Computers in Biology and Medicine, 141, 105134.
[6]. Al-Dulaimi, Dalya S., Aseel Ghazi Mahmoud, Nadia Moqbel Hassan, Ahmed Alkhayyat, and Sayf A. Majeed. "Development of Pneumonia Disease Detection Model Based on Deep Learning Algorithm." Wireless Communications and Mobile Computing 2022 (2022)