IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 3, Issue 2, October 2023

Cancer Detection and Recommendation Using Deep Learning

Priyanka Bhagwat Nagargoje and Dr. M. A. Wakchaure

Department of Computer Engineering Amrutvahini College of Engineering, Sangamner, Maharashtra, India nagargojepriya@gmail.com and manoj.wakchaure@avcoe.org

Abstract: Our project aims to address the critical need for early and accurate blood cancer detection through the innovative application of a Convolutional Neural Network (CNN) model. Utilizing a comprehensive dataset containing both cancerous and normal blood cell images, our CNN model underwent extensive training, resulting in a high level of accuracy in discriminating between the two cell types. Rigorous evaluation involved testing on a separate set of blood cell images, comparing predicted labels with ground truth labels, demonstrating the model's commendable accuracy.

The outcomes highlight the model's efficacy in distinguishing between cancerous and normal blood cells, establishing its potential as a promising tool for blood cancer detection. Moreover, we discuss the profound implications of these findings for early diagnosis and improved treatment outcomes. The model's robustness and reliability underscore its practical applicability in clinical settings.

Our approach showcases a novel methodology employing a CNN model for blood cancer detection, emphasizing its effectiveness in accurately differentiating between cancerous and normal blood cells. This method holds promise for enhancing blood cancer diagnosis and, ultimately, contributing to elevated standards of patient care.

Keywords: Deep Learning, Convolutional Neural Networks, Image Processing, Multiple Myeloma

REFERENCES

[1] World Health Organization. (2019). Hematologic malignancies.

[2] Swerdlow, S. H., Campo, E., Harris, N. L., Jaffe, E. S., Pileri, S. A., Stein, H., ... & Thiele, J. (Eds.). (2017). WHO classification of tumours of haematopoietic and lymphoid tissues. International Agency for Research on Cancer.

[3] Li, L., & Ramdas, L. (2019). Machine learning in cancer diagnosis and prognosis. CRC Press. Li, L., & Ramdas, L. (2019). Machine learning in cancer diagnosis and prognosis. CRC Press.

[4] LeCun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. Nature, 521(7553), 436-444.

[5] Krizhevsky, A., Sutskever, I., & Hinton, G. E. (2012). ImageNet classification with deep convolutional neural networks. In Advances in neural information processing systems (pp. 1097-1105).

[6] Shen, D., Wu, G., & Suk, H. I. (2017). Deep learning in medical image analysis. Annual Review of Biomedical Engineering, 19, 221-248

[7] Reference for the CNN model learning to identify key features: Shen, D., Wu, G., & Suk, H. 1. (2017). Deep learning in medical image analysis. Annual Review of Biomedical Engineering, 19, 221-248.

[8] Reference for conducting extensive tests on a separate set of blood cell images: Li, L., & Ramdas, L. (2019). Machine learning in cancer diagnosis and prognosis. CRC Press.

[9] Reference for comparing predicted labels with expert annotations or biopsy results: Li, L., & Ramdas, L. (2019). Machine learning in cancer diagnosis and prognosis. CRC Press.

[10] Reference for assessing the effectiveness of the model in detecting blood cancer: Li, L., & Ramdas, L. (2019). Machine learning in cancer diagnosis and prognosis. CRC Press.

[11] Reference for the promise of early blood cancer detection and treatment planning: Li, L., & Ramdas, L. (2019). Machine learning in cancer diagnosis and prognosis. CRC Press.

Copyright to IJARSCT www.ijarsct.co.in DOI: 10.48175/568



42

IJARSCT



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Volume 3, Issue 2, October 2023

[12] Reference for the importance of early detection and improved patient prognosis: Swerdlow, S. H., Campo, E., Harri, N. L., Jaffe, E. S., Pileri, S. A., Stein, H., ... & Thiele, J. (Eds.). (2017). WHO classification of tumours of haematopoietic and lymphoid tissues. International Agency for Research on Cancer.

[13] World Medical Association. (2013). World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMA, 310(20), 2191-2194.

[14] Council for International Organizations of Medical Sciences. (2016). International ethical guidelines for healthrelated research involving humans. World Health Organization.

[15] Smith, J., Johnson, L., & Anderson, M. (2018). Data anonymization: Challenges and solutions. Springer.

[16] International Conference of Data Protection and Privacy Commissioners. (2017). Guidelines on the protection of individuals with regard to the processing of personal data in a world of big data.

[17] National Institutes of Health. (2019). Protecting personal health information in research: Understanding the HIPAA Privacy Rule.

[18] Department of Health and Human Services. (2020). HIPAA security rule overview.

[19] International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use. (2016). ICH harmonised guideline: Integrated addendum to ICH E6(R1): Guideline for good clinical practice E6(R2).

