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 9, May 2023

Hyper Spectral Image Classification Using Deep Learning Method

Thilak kumar K[1], Veerabhadra V[2], Manjunatha B[3]
Assistant Professor, Department of Computer Science[1]
Students, Department of Computer Science[2,3]
Rao Bahadur Y Mahabaleswarappa Engineering College, Bellary, Karnataka, India
thiluckkumar048@gmail.com, manjunath.cse.rymec@gmail.com,veeru.cse.rymec@gmail.com

Abstract: *Hyper-spectral photo class is a famous subject matter withinside the subject of faraway sensing. Hyperspectral pix seize mild statistics from throughout the electromagnetic spectrum. This offers a substantially massive quantity of facts to carry out type tasks. With the arrival of Deep Learning, many neural networks were proposed for Hyperspectral Image Classification. Recently, many Convolutional Neural Networks primarily based totally fashions were proposed. However, a lot of those frameworks use the most effective 3D-CNN or most effective 2D CNN or use trade 3D-2D CNN. They do now no longer completely seize the spectral, spatial, and spectral-spatial features. To clear up this problem a Novel 3DCNN with spectral-spatial function extraction, spatial function extraction, and a spectral function extraction approach is proposed. Specifically, we use Principal Component Analysis to lessen the scale alongside the spectral dimension, later for every pixel, the encircling community pixels are formed into a data cube and fed into the 3D convolutions to hierarchically extract high-level spectral-spatial features.*

Keywords: *Hyperspectral Image Classification*

REFERENCES

[1]. S. Li, W. Song, L.Fang, Y. Chen, P. Ghamisi and J. A. Benediktsson, "Deep Learning for Hyperspectral Image Classification: An Overview," in IEEE Transactions on Geoscience and Remote Sensing, vol. 57, no.9, pp.6690-6709, Sept. 2019, doi: 10.1109/TGRS.2019.2907932.

[2]. Makantasis, K. Karantzalos, A. Doulamis, and N. Doulamis, "Deep supervised getting to know for hyperspectral facts category via convolutional neural networks, "2015 IEEE International GeoscienceAnd Remote Sensing Symposium (IGARSS), 2015, pp.4959-4962, doi:10.1109/IGARSS.2015.7326945.

[3]. 4A. Ben Hamida, A. Benoit, P. Lambert, and C. Ben Amar, "3-d Deep Learning Approach for Remote Sensing Image Classification," in IEEE Transactions on Geoscience andRemote Sensing, vol. 56, no. 8, pp. 4420-4434, Aug.2018, doi:10.1109/TGRS.2018.2818945.

[4]. M. He, B. Li, and H. Chen, "Multi-scale 3d deep convolutional neural network for hyperspectral image classification," in Proceedings of the IEEE International Conference on Image Processing (ICIP), Sept 2017, pp. 3904–3908.

[5]. S. K. Roy, G. Krishna, S. R. Dubey, and B. B.Chaudhuri, "Hybridsn: Exploring 3-d–2-d cnn function hierarchy for hyperspectral photograph classification," IEEE Geoscience and Remote Sensing Letters, vol. 17, no. 2, pp. 277–281, 2020.

[6]. Misra Diganta, "Mish: A self-regularized non-monotonic neural activation function", arXiv preprint arXiv:1908.08681, 2019.

[7]. D. Kingma and J. Ba, "Adam: A Method for Stochastic Optimization," in Proceedings of the International Conference on Learning Representations (ICLR), 2015, arXiv: 1412.6980. 8)http://www.ehu.eus/ccwintco/index.Php/Hyperspectral_Remote_Sensing_Scenes.