IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 2, March 2022
Impact Factor: 6.252

Leaf Disease Classification Using Machine Learning

Sandip Bobade[1], Aniket Patil[2], Satyajeet Bhalerao[3], Revan Bhonde[4], Rutuja Borkar[5]
Department of Information Technology and Engineering[1,2,3,4,5]
Smt. Kashibai Navale College of Engineering Pune, Maharashtra, India

Abstract: *Agriculture production is extremely important to the economy of our country. Plant illnesses are fairly common, hence early diagnosis of diseases in plants is critical. The detection of these illnesses using an automated approach is advantageous because it decreases the amount of labour required to monitor vast farms of crops, such as those owned by MP farmers and Panjabi farmers, and it detects disease signs at an early stage. It first locates and captures the contaminated area before doing picture pre-processing. In this study, we are focused on a method that can assist farmers who cultivate potatoes who face significant financial losses each year due to a variety of illnesses that harm potato plants. The most common illnesses are Early Blight and Late Blight. Early blight is caused by fungus, but late blight is caused by certain microorganisms, and farmers may save a lot of waste and money if they discover the illness early and treat it properly. Because the treatments for early blight and late blight are slightly different, it's critical to correctly identify the disease in that potato plant. We'll employ Convolutional Neural Network - Deep Learning to diagnose behind the scenes. This will help farmers to gain the required result in very short span of time. This Will help in saving their time and money and also it will save the wastage of harmful pesticides on the farming land.*

Keywords: Classification, Convolutional Neural Network, Deep Learning, Machine Learning, FAST API.

REFERENCES

[1] K. A. Beals, "Potatoes, Nutrition and Health," American Journal of Potato Research, no. 96, pp. 102-110, 2019.
[2] R. A. Sholihati, I. A. Sulistijono, A. Risnumawan and E. Kusumawati, "Potato Leaf Disease Classification Using Deep Learning Approach," 2020 International Electronics Symposium (IES), 2020, pp. 392-397, doi: 10.1109/IES50839.2020.9231784.
[3] M. K. R. Asif, M. A. Rahman and M. H. Hena, "CNN based Disease Detection Approach on Potato Leaves," 2020 3rd International Conference on Intelligent Sustainable Systems (ICISS), 2020, pp. 428-432, doi: 10.1109/ICISS49785.2020.9316021.
[4] A. J. Rozaqi and A. Sunyoto, "Identification of Disease in Potato Leaves Using Convolutional Neural Network (CNN) Algorithm," 2020 3rd International Conference on Information and Communications Technology (ICOIACT), 2020, pp. 72-76, doi: 10.1109/ICOIACT50329.2020.9332037.
[5] R. A. Sholihati, I. A. Sulistijono, A. Risnumawan and E. Kusumawati, "Potato Leaf Disease Classification Using Deep Learning Approach," 2020 International Electronics Symposium (IES), 2020, pp. 392-397, doi: 10.1109/IES50839.2020.9231784.
[6] S. Sharma, V. Anand and S. Singh, "Classification of Diseased Potato Leaves Using Machine Learning," 2021 10th IEEE International Conference on Communication Systems and Network Technologies (CSNT), 2021, pp. 554-559, doi: 10.1109/CSNT51715.2021.9509702.
[7] [7] Mrunalini R. et al., An application of K- pattern recognition for crop diseases 2011. means clustering and artificial intelligence in pattern recognition for crop disease, 2011
[8] S.Raj Kumar, S.Sowrirajan," Automatic Leaf Disease Detection and Classification using Hybrid Features and Supervised Classifier", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, vol. 5, Issue 6,2016..
[9] J. R. Rohr, T. R. Raffel, J. M. Romansic, H. McCallum, and P. J. Hudson, "Evaluating the links between climate, disease spread, and amphibian declines," Proceedings of the National Academy of Sciences of the United States of America, vol. 105, no. 45, pp. 17436-17441, 2008. View at Publisher View at Google Scholar View at Scopus.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 2, March 2022
Impact Factor: 6.252

[10] T. Van der Zwet, "Present worldwide distribution of fire blight," in Proceedings of the 9th International Workshop on Fire Blight, vol. 590, Napier, New Zealand, October 2001.

[11] H. Cartwright, Ed., Artificial Neural Networks, Humana Press, 2015

[12] Steinwart and A. Christmann, Support Vector Machines, Springer Science & Business Media, New York, NY, USA, 2008. View at MathSciNet.

[13] Tatem, D. J. Rogers, and S. L. Hay, "Global transport networks and infectious disease spread," Advances in Parasitology, vol. 62, pp. 293-343, 2006. View at Publisher View at Google Scholar View at Scopus.

[14] N. Kaur and V. Devendran, "Ensemble Classification and Feature Extraction Based Plant Leaf Disease Recognition," 2021 9th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), 2021, pp. 1-4, doi: 10.1109/ICRITO51393.2021.9596456.

[15] V. Kukreja, A. Baliyan, V. Salonki and R. K. Kaushal, "Potato Blight: Deep Learning Model for Binary and Multi-Classification," 2021 8th International Conference on Signal Processing and Integrated Networks (SPIN), 2021, pp. 967-672, doi: 10.1109/SPIN52536.2021.9566079.

[16] G. IRMAK and A. SAYGILI, "Tomato Leaf Disease Detection and Classification using Convolutional Neural Networks," 2020 Innovations in Intelligent Systems and Applications Conference (ASYU), 2020, pp. 1-5, doi: 10.1109/ASYU50717.2020.9259832.

[17] S. Ashok, G. Kishore, V. Rajesh, S. Suchitra, S. G. G. Sophia and B. Pavithra, "Tomato Leaf Disease Detection Using Deep Learning Techniques," 2020 5th International Conference on Communication and Electronics Systems (ICCES), 2020, pp. 979-983, doi: 10.1109/ICCES48766.2020.9137986.

[18] https://www.kaggle.com/datasets/arjuntejaswi/plant-village