

# Birdy: A Bird Detection System using CNN and Transfer Learning

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**Abstract:** Identification of bird species is an important part of efforts to monitor and protect biodiversity. The routine process of brand identification is often labor-intensive and time-consuming. In this project, we use the power of deep learning, specifically convolutional neural networks (CNN) and Transfer Learning, to recognize bird species from image data. Transformational learning allows us to build advanced learning models that achieve high accuracy with little data. Our method is based on collecting large numbers of bird images and can identify many bird species. The findings not only improve the effectiveness of bird species research, but also help better understand bird ecosystems and promote conservation. In-depth research on bird species CNN Change study Biodiversity monitoring Species Identification Sustainable conservation.

**Keywords:** Transfer learning, CNN (convolutional neural network ), Transformational learning, Bird species detection.

## REFERENCES

- [1]. Muhammad Awais Hussain, Shih-An Huang, and Tsung-Han Tsai "Learning Through Collaboration (2023)"
- [2]. Yo-Ping Huang and Haobijam Basanta "Deep Learning Models for the Identification of Native Bird Species (2021)"
- [3]. Kuihe Yang and Ziyang Song "Enhancing Fine-Grained Bird Object Detection Using Deep Learning (2021)"
- [4]. Yo-Ping Huang and Haobijam Basanta "Avian Image Retrieval and Species Identification via a Deep Learning Platform (2019)"
- [5]. D. T. C. Cox and K. J. Gaston, "Likeability of garden birds: Importance of species knowledge & richness in connecting people to nature," PloS one, vol. 10, no. 11, Nov. 2015, Art. no. e0141505.
- [6]. F. He and S. P. Hubbell, "Species—Area relationships always overestimate extinction rates from habitat loss," Nature, vol. 473, no. 7347, pp. 368–371, May 2011.
- [7]. Y.-Q. Guo, G. Chen, Y.-N. Wang, X.-M. Zha, and Z.-D. Xu, "Wildfire identification based on an improved two-channel convolutional neural network," Forests, vol. 13, no. 8, p. 1302, Aug. 2022.