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AI-Powered Identification of Bird Species

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Abstract: *Birds are essential to ecosystems, and recognising them is essential for conservation and biodiversity monitoring. It has over 9,000 bird species worldwide, many of which are rare and challenging to identify; expert manual classification is labour-intensive and prone to mistakes. This study aims at solving these difficulties. This study presents an AI- powered bird species recognition system that combines visual and auditory characteristics. The system recognises bird vocalisations using spectrogram-based audio processing and classifies pictures using CNN. Converting bird calls into spectrograms enables the model to analyse them as visual information, and CNNs have shown promise in image recognition. The project uses audio datasets like Kaggle for sound recognition and the Caltech-UCSD Birds 200 dataset for picture training. By combining visual and auditory cues, the suggested method achieves robust classification while lowering misidentification from background noise or species-to-species visual similarity.*

Keywords: Bird species, Machine Learning, Convolutional Neural Networks, Audio Recognition, Spectrogram

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