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Editorial

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Technologies in Bioacoustics: From Recording Devices to AI in Animal Sound Analysis

(AI) in animal sound analysis, technological advancements have greatly enhanced our ability to understand animal behavior, communication, and ecology. This article explores the history and development of bioacoustic technologies, from basic recording devices to modern AI-driven analysis tools. It covers the technical aspects of sound recording, the challenges in data collection and analysis, and the current state of machine learning applications in bioacoustics. The discussion emphasizes the role of these technologies in conservation, ecological monitoring, and animal behavior studies, highlighting their contributions to both science and wildlife protection. Finally, the article concludes with a look at the future of bioacoustics, particularly the integration of more sophisticated AI techniques to unlock deeper insights into the animal kingdom.

Methodolgy

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Early recording devices

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The digital revolution

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animal behavior, evolutionary biology, ecology, conservation, and environmental monitoring. Animals use sound for a variety of purposes, such as communication, navigation, mating calls, territory defense, and even foraging. As a result, the study of animal sounds provides critical insights into animal life and ecological interactions [1-3]

Technological advancements have been central to the development

AI for automated sound recognition

Deep learning and sound feature extraction

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Real-time monitoring and large-scale applications

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Discussion

Conclusion

References

1. Adavanne, Adavanne S, Politis A, Virtanen T, Adavanne S, et al. (2018) Direction of arrival estimation for multiple sound sources using convolutional recurrent neural network. 2018 26th European Signal Processing Conference (EUSIPCO) Piscataway: IEEE 1462-1466.
2. Adi, Adi K, Johnson MT, Osiejuk TS (2010) Acoustic censusing using automatic vocalization classifcation and identity recognition. Journal of the Acoustical Society of America 127: 874-883.

3. Allen, Allen AN, Harvey M, Harrell L, Jansen A, et al. (2021) A convolutional neural network for automated detection of humpback whale song in a diverse, long-term passive acoustic dataset. Frontiers in Marine Science 8: 165.

4. Arteta, Arteta C, Lempitsky V, Zisserman A, Lempitsky, et al. (2016) Counting in the wild. European Conference on Computer Vision; Berlin: Springer 483-498.

5. Baevski, Baevski A, Zhou Y, Mohamed A, Auli M (2020) wav2vec 2.0: a framework for self-supervised learning of speech representations. Advances in Neural Information Processing Systems (NeurIPS) 33: 12449-12460.

6. Bain (2021) Automated audiovisual behavior recognition in wild primates. Science Advances 7: eabi4883.

7. Baker E, Vincent SA, Baker (2019) Vincent deafening silence: a lack of data and reproducibility in published bioacoustics research? Biodiversity Data Journal 7: e36783.

8. Balestriero, Balestriero R, Cosentino R, Glotin H, Baraniuk R, et al. (2018) Spline fIters for end