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Characterization and anomaly detection in daily cow activities using wavelet-based features

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Anomaly detection in the day-to-day activity of dairy cows is challenging, as true abnormal behavior must be distinguished from the individual variability and the animals' endogenous rhythms. Current algorithms for anomaly detection in times series include various techniques, with neural network-based methods being the most prominent. However, these approaches lack interpretability, which is crucial in precision livestock farming. This work proposes extracting interpretable features using wavelet transforms, enabling better time-frequency analysis of the endogenous rhythm compared to abnormal rhythms. The results show that some wavelets have a positive impact on performance, and align with expert knowledge.

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