

AI-Powered Monitoring for Mitigating Human-Animal Conflicts in Agricultural and Forest Zones

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Abstract:

Human-animal conflicts pose a significant challenge in forest zones and agricultural fields, leading to resource losses and threats to endangered wildlife. These conflicts have escalated in recent years, necessitating innovative solutions for continuous monitoring and intervention. This study presents a novel approach for mitigating such conflicts by leveraging image processing and Artificial Intelligence (AI). Motion detection techniques are employed to identify activity, and content-based image classification algorithms analyze the captured visuals. The proposed method integrates advanced feature extractors, data augmentation, and AI to develop a robust detection network. Additionally, the system enhances safety analysis and certification for high-speed trains by identifying objects and animals in real time. Using the COCO dataset for training and validation, the study demonstrates the potential of AI to streamline conventional safety measures and ensure the coexistence of humans and animals in ecologically sensitive areas.

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