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Broiler Mortality Detection Using Robotic Vision and Deep Learning

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Abstract

This work presents an application of Robot-Aided Vision to improve bird welfare in poultry farms through a collection of broiler visual data to train a Deep Learning model for mortality detection. The system will ultimately help design a precision poultry farming. We have used YOLO deep learning model for training and inferencing whether birds detected from robot's point of view are dead or alive. The classifier can be extended to include sick birds as well. We have collected real-world data from a commercial poultry farm by navigating a remotely controlled ground vehicle mounted with environmental sensors and cameras in a broiler grower house. Using the extensive image and sensor dataset collected, we report preliminary results with a high accuracy (approx. 90.2%) for bird status (dead/alive) detection in a full-frame image using the proposed robotic vision approach.