

Title: “SNORT: Swine Nutritional Observation and Routing Technology”;
#20-110 IPPA

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Scientific Abstract

This report presents the findings for the assessment of an algorithm to detect, track, and monitor individual weaned pig food intake for feed transition recommendations. The specific research objective of this work was to validate predictive visual sensing and sensemaking algorithms in production facilities for near-scale responses regarding the growth of individual and groups of grow-finish pigs which can inform and improve animal health and welfare management and production efficiency. Consistent, reliable, and accurate monitoring of individual animals is one of the biggest challenges faced by the livestock industry today; furthermore, access to these data for analysis and modeling purposes may be limited by security protocols and/or the format in which the data might be available. The approach of this work uses a computer vision technique combined with a machine learning algorithm (Mask R-CNN) to automatically identify and visually track the eating behaviors of individual animals in a pen. Results are converted into a tabular format that can be translated into geometric input files for modeling purposes. This fast, approximation approach to assembling individual animal data could be of interest to animal science-related researchers and practitioners, to improve operations in animal production systems.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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