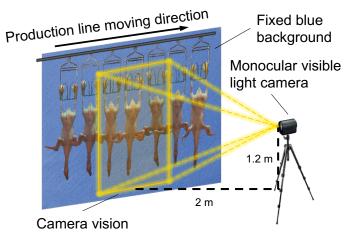
Online Estimating Weight of White Pekin Duck Carcass by Computer Vision

Camera Environment



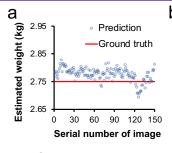


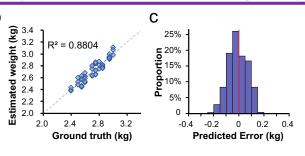
Original Image size: 253x80x1 1st convolution laver Max pool 2nd convolution layer Max pool 3rd convolution layer Max pool Fully connected layer Fully connected layer 2.75kg Weight

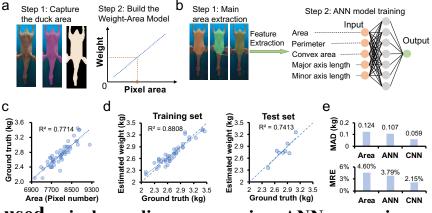
CNN network structure

Online Image Weighing

This was achieved by a new image-based weighing method. Compared with previous methods, our method automatically abstracts features and greatly improves the accuracy of weight estimation.







Performance:

MAD: 58.8 grams

MRE: 2.15%

 R^2 : 0.8804

> RMSE: 63.6 grams

Cve: 2.33%

2 widely used

pixel area linear regression, ANN regression

methods:

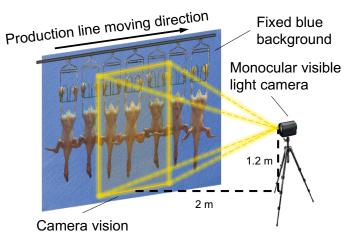
64.7 grams \downarrow , 52.4% \downarrow 48.2 grams \downarrow , 45.0% \downarrow

Ruoyu Chen, Yuliang Zhao, Yongliang Yang, Shuyu Wang, Lianjiang Li, Xiaopeng Sha, Lianqing Liu, Guanglie Zhang, and Wen Jung Li. "Online Estimating Weight of White Pekin Duck Carcass by Computer Vision." Poultry Science (2022).

通过计算机视觉在线估算北京白鸭胴体重量

CNN network structure

Camera Environment

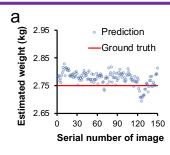


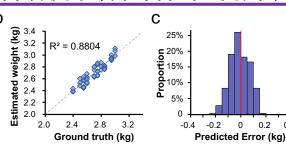


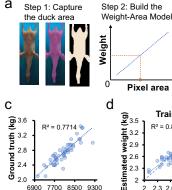
Original Image size: 253x80x1 1st convolution layer Max pool 2nd convolution layer Max pool 3rd convolution layer 29x8x16 Max pool Fully connected layer Fully connected layer 2.75kg Weight

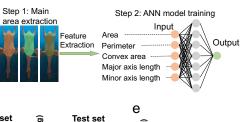
实时图像称重

这是一种新的基于图像的称重方法。与以前的方法相比,我们的 方法自动提取特征并大大提高









性能:

MAD: 58.8克

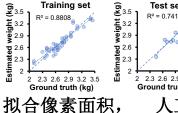
MRE: 2.15%

 R^2 : 0.8804

➤ RMSE: 63.6克

Cve: 2.33%

两种常用方法:





Area ANN CNN

64.7克↓, 52.4% ↓

Pixel area

48.2克↓, 45.0% ↓

Ruoyu Chen, Yuliang Zhao, Yongliang Yang, Shuyu Wang, Lianjiang Li, Xiaopeng Sha, Lianqing Liu, Guanglie Zhang, and Wen Jung Li. "Online Estimating Weight of White Pekin Duck Carcass by Computer Vision." Poultry Science (2022).

0.2 0.4