FAIR Data Science for Green Life Sciences - Wageningen
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Muscle score prediction of pigs using a Kinect camera

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People

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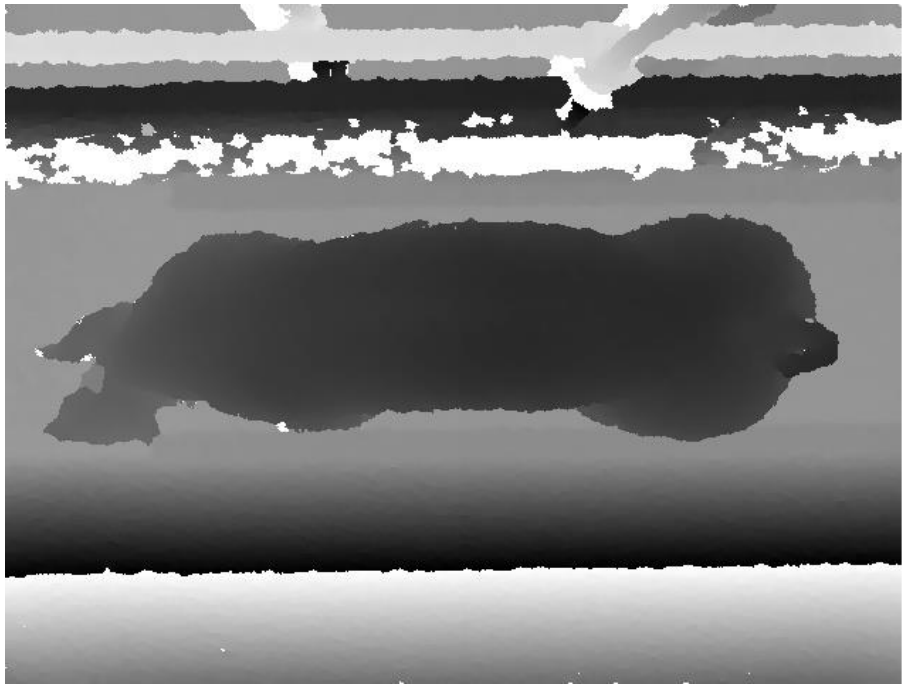
Description of data

- Approximately 3000 pigs, each with 20 depth-images captured by a Kinect sensor, and a corresponding muscle score given by an expert assessor.

- Objective: predicting the muscle score using the images only.



Guess the muscle score (7 and 1)

Guess the muscle score

7

1

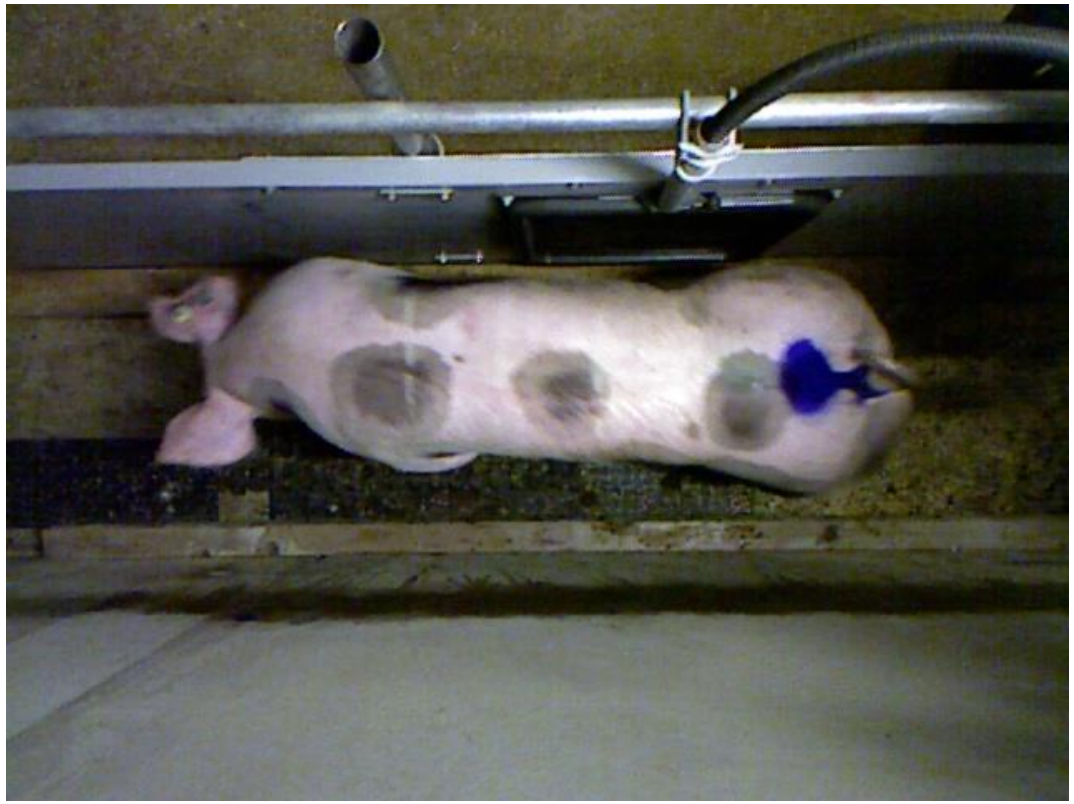
Guess the muscle score (6 and 2)

Guess the muscle score

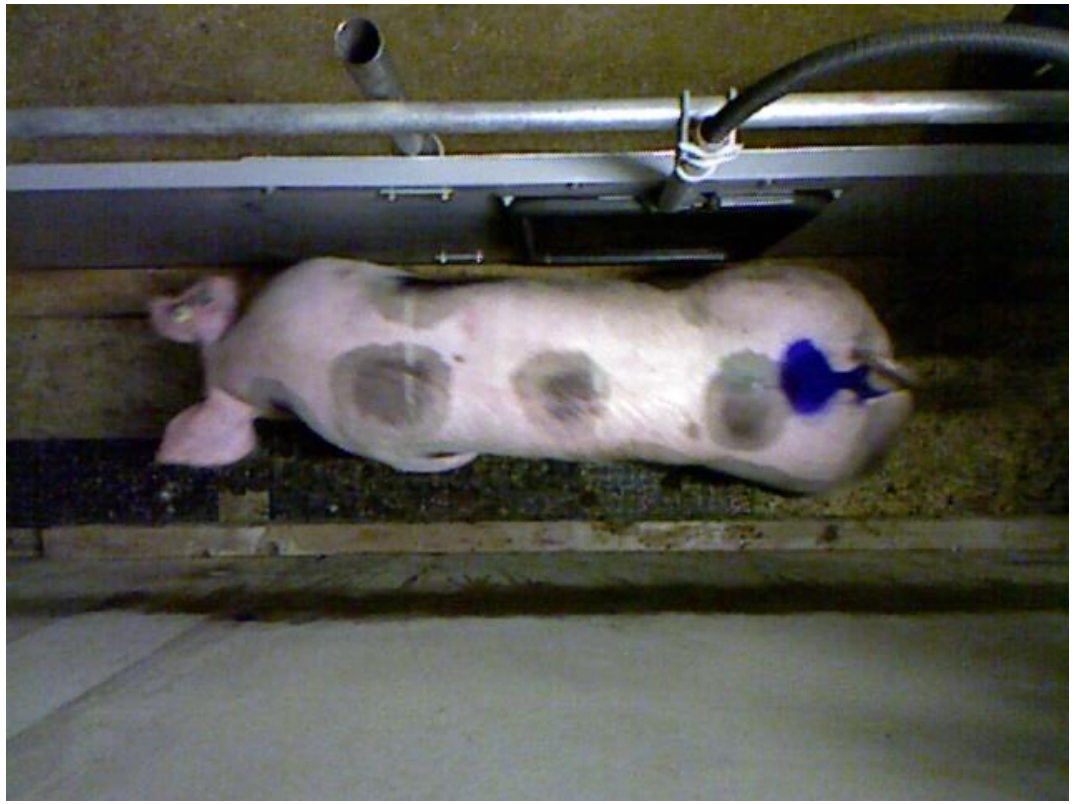
6

2

Guess the muscle score (4 and 5)



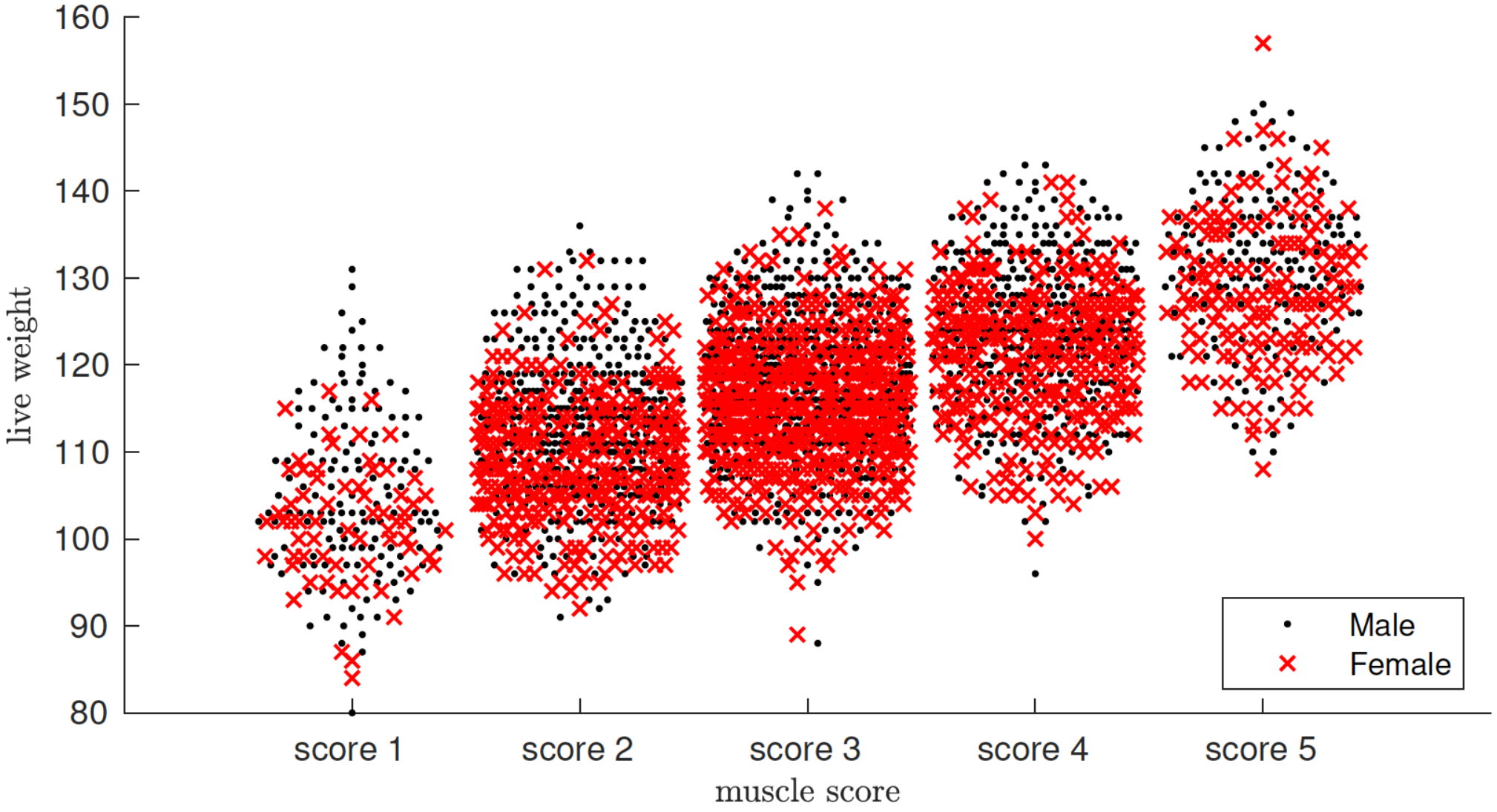
Guess the muscle score



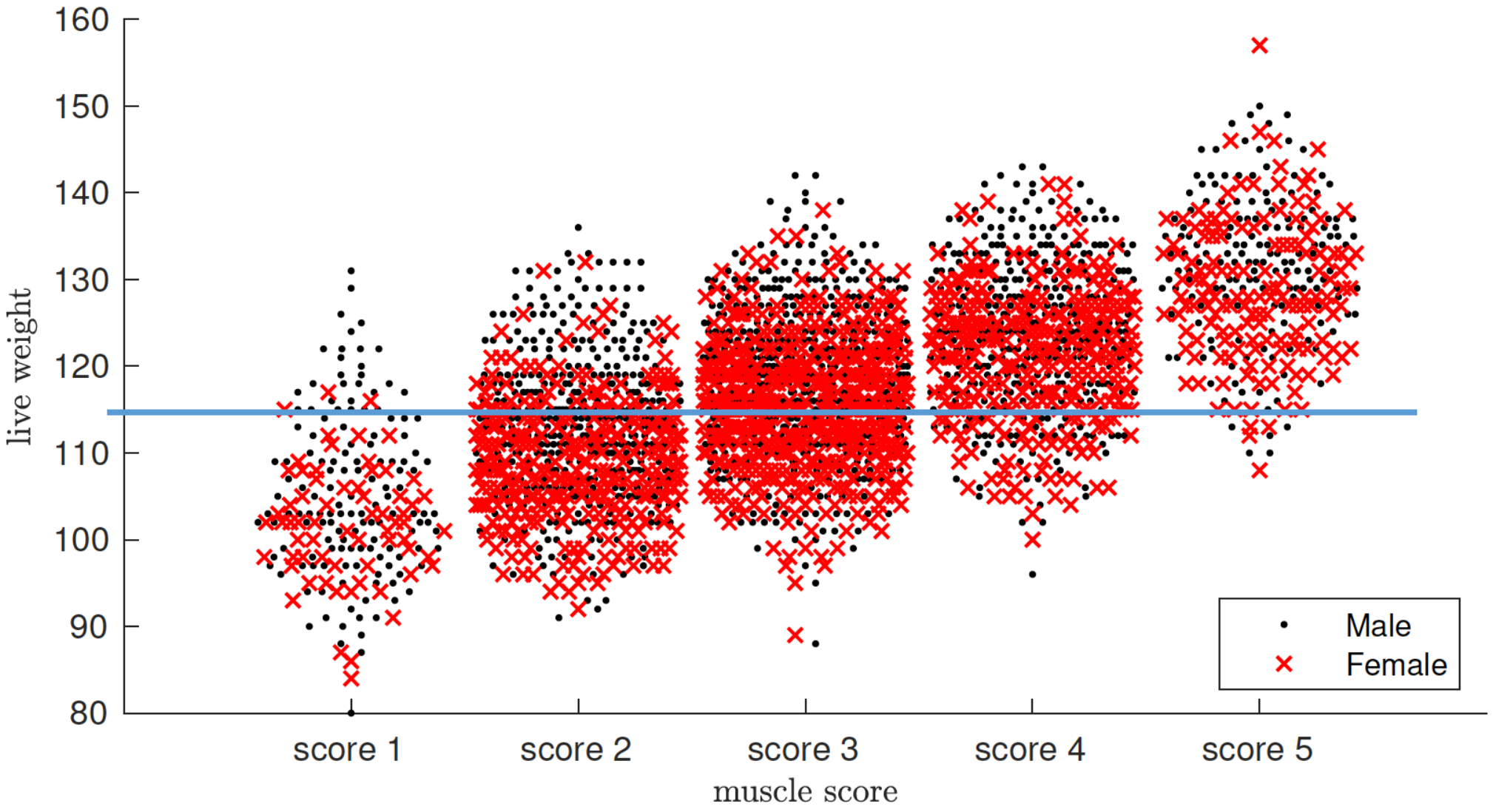
5

4

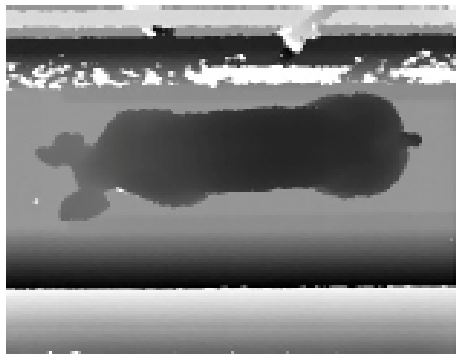
Is muscularity the same as size or weight?



Is muscularity the same as size or weight?

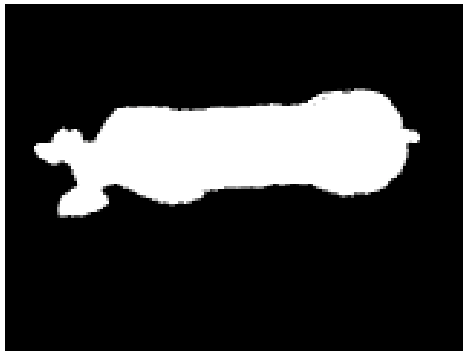


Extraction of the body

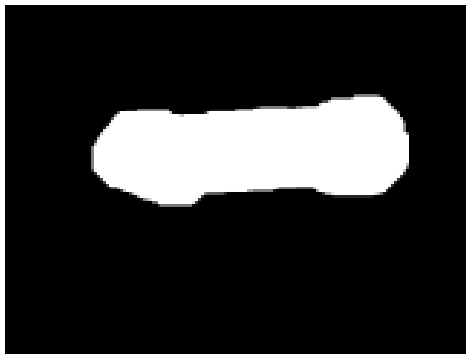


(a)

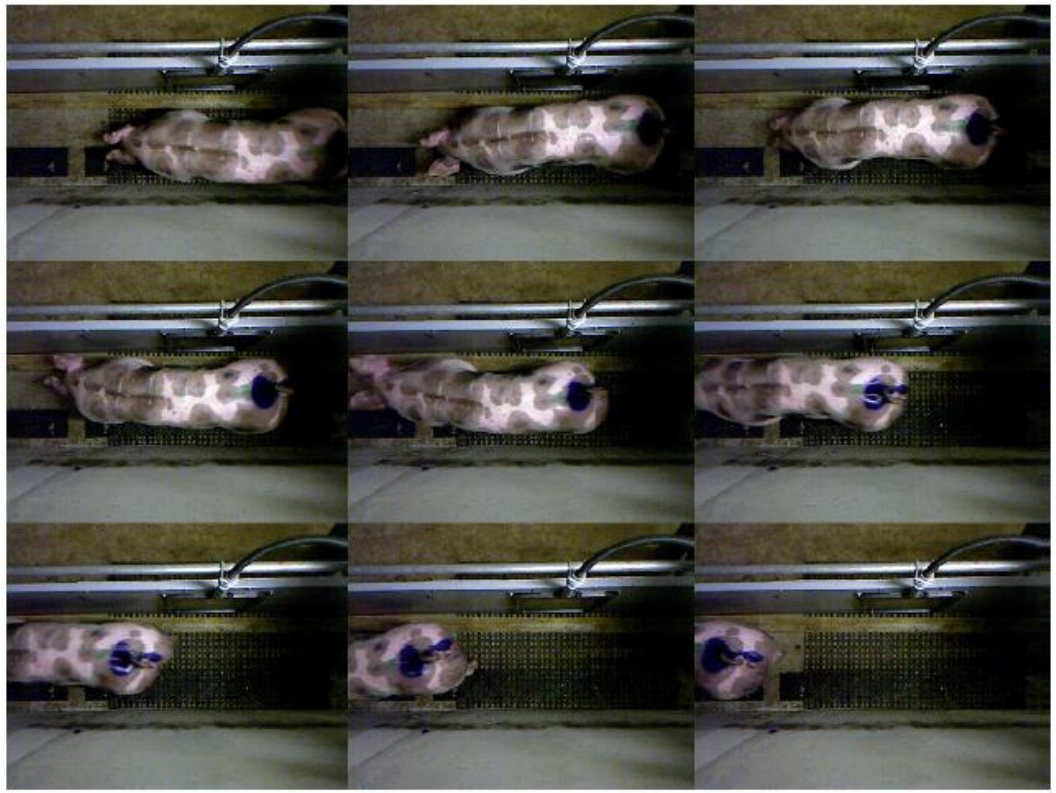
(b)

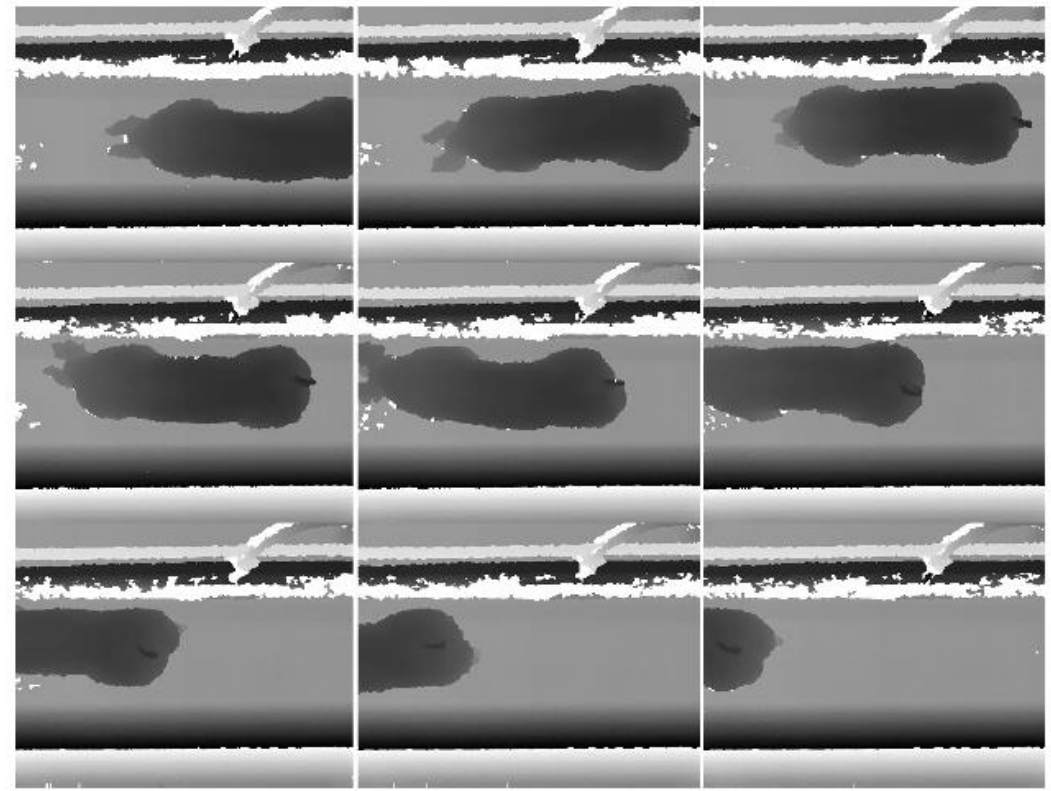


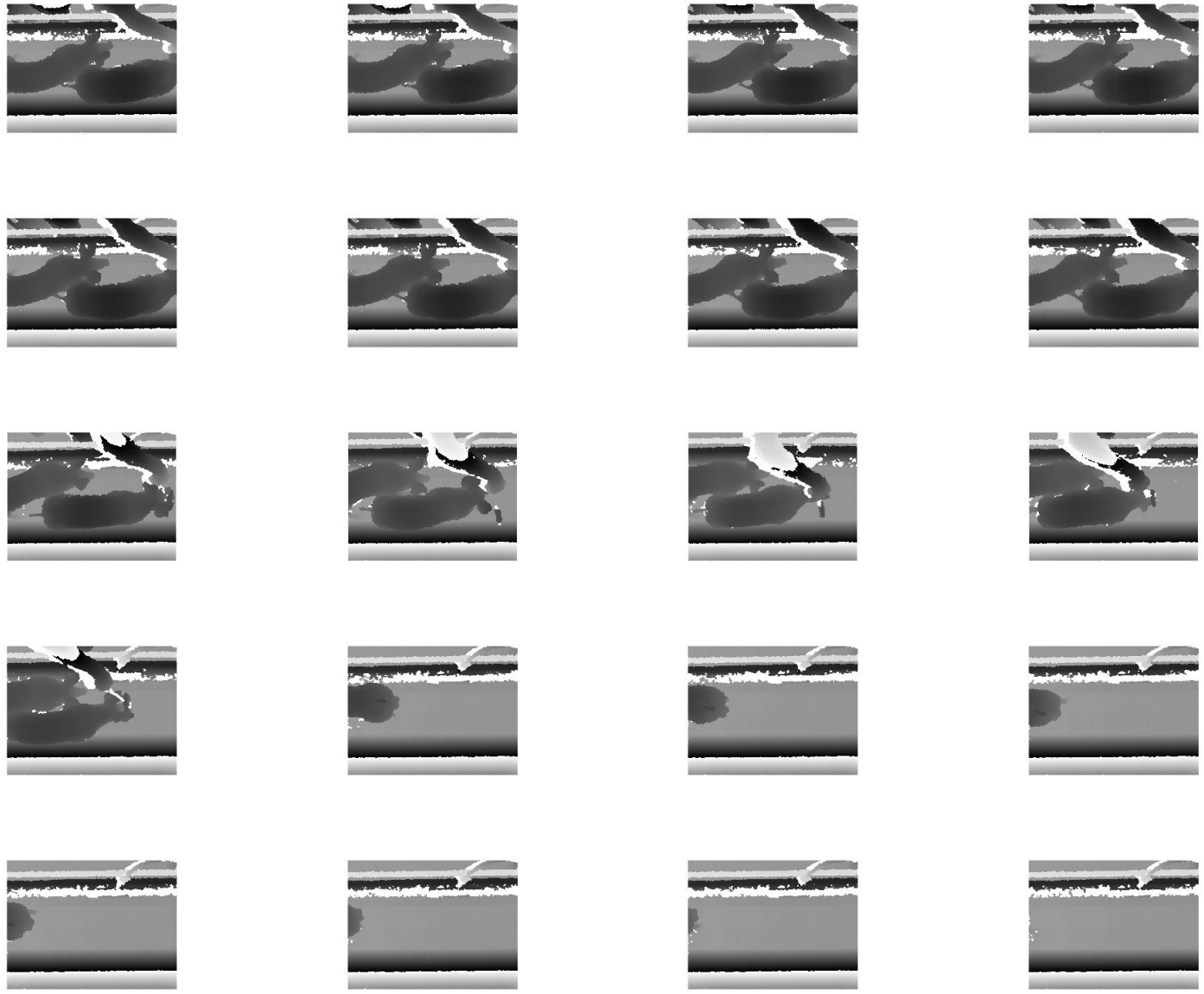
(c)



(d)







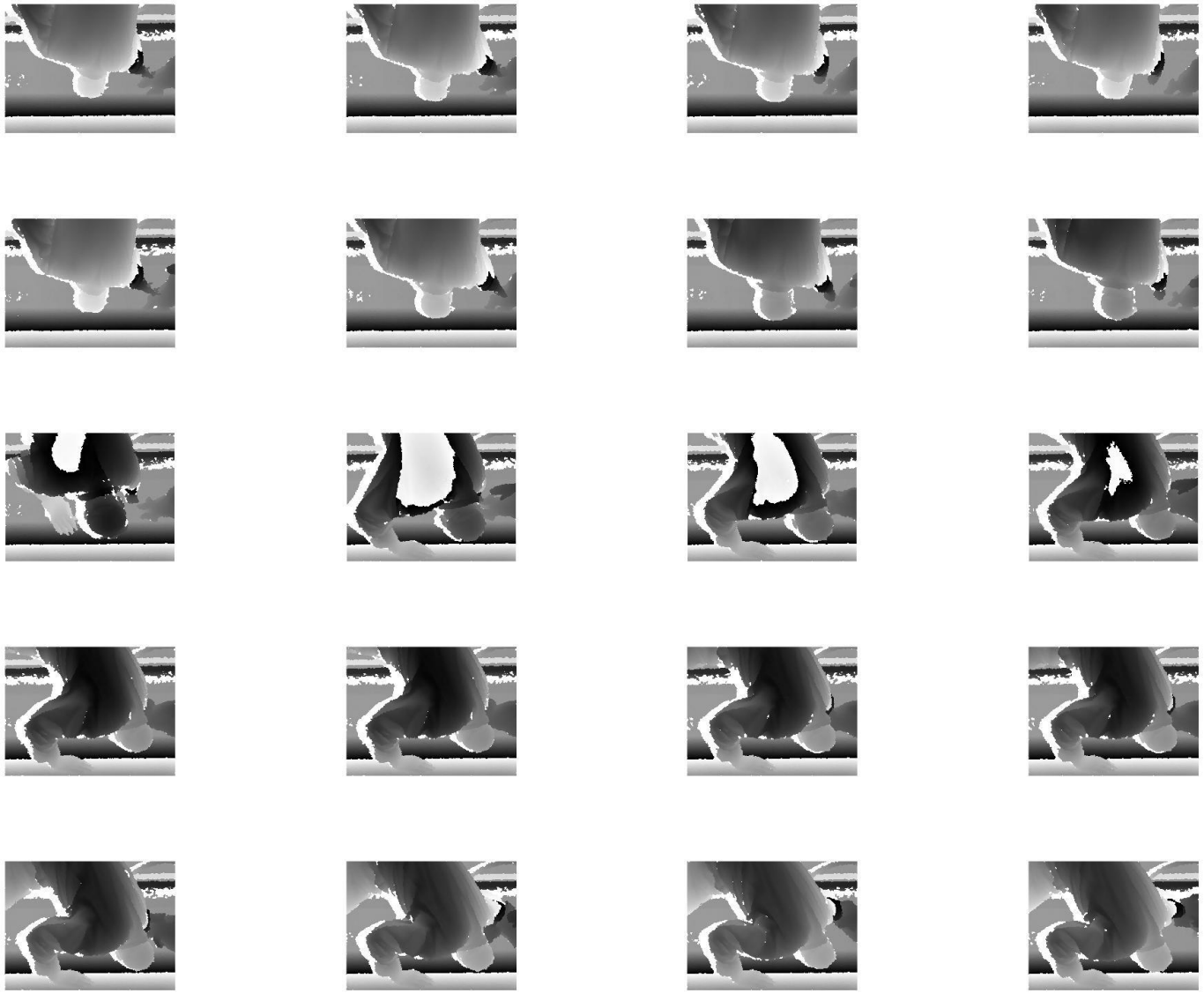
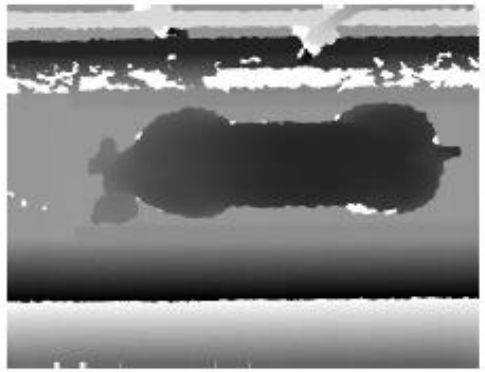


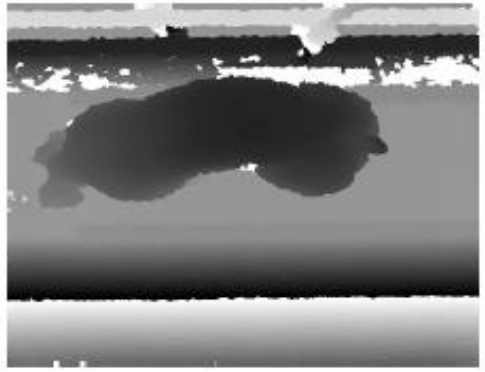
Image selection

Selection is based on multiple criteria, including posture uniformity, which we measured by a symmetry index.

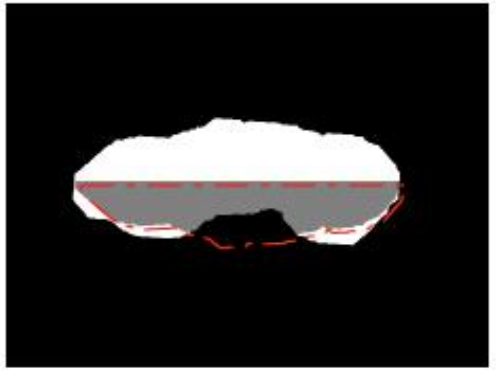


(a)

(b)



(c)

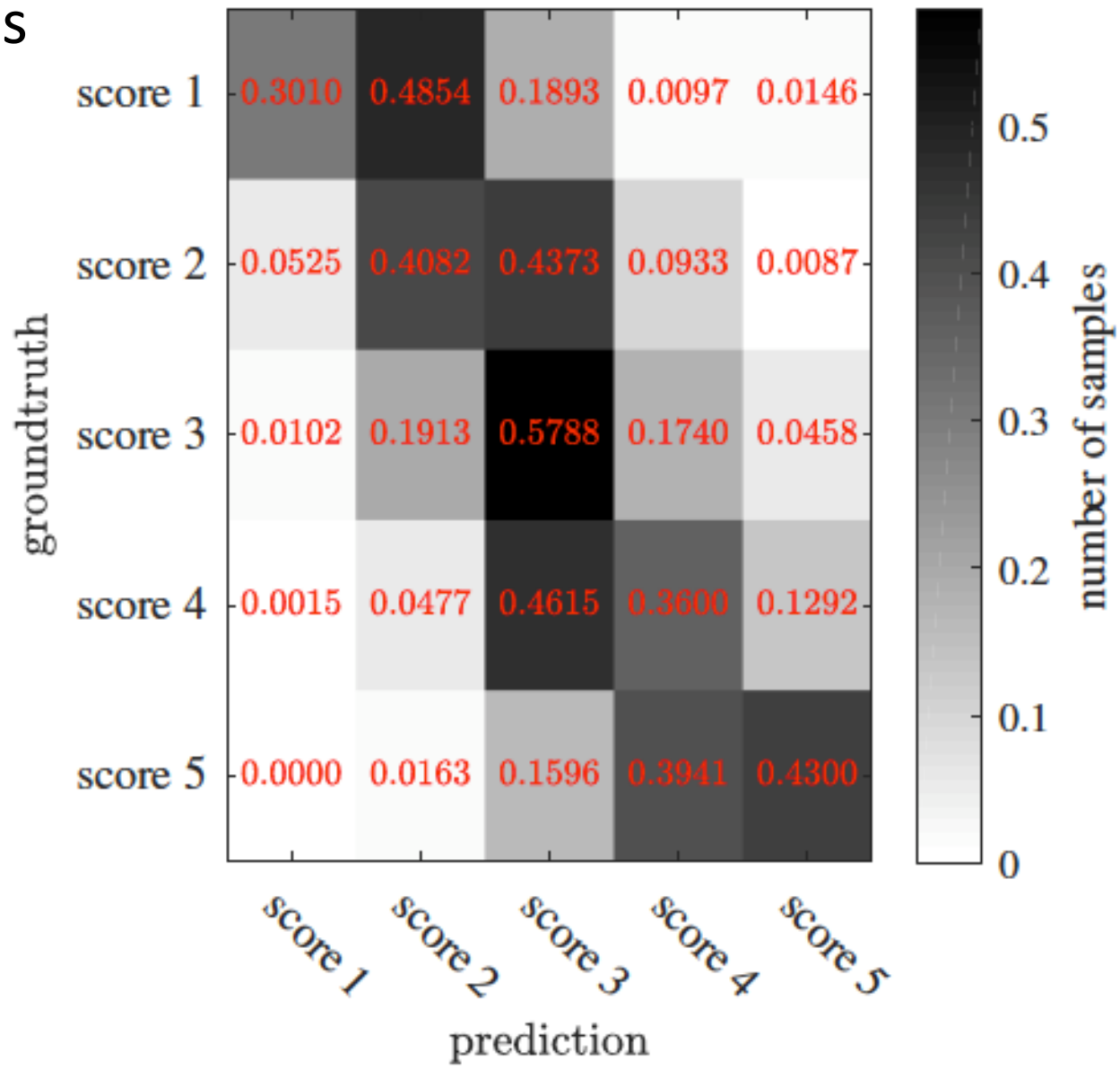


(d)

Supervised learning with tree ensembles

- Ability to model nonlinear interactions.
- Ability to handle heterogeneous modalities of data with minimal pre-processing.
- Good performance with fewer user-specified parameters.

Classification results



Conclusions

- Limitations of learning from subjective data.
- Future improvements with better data.
- Practical implication.