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Vision based meat tracking

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Objectives

To show that it is possible with vision to recognize an individual pork loin after overnight bulk storage.

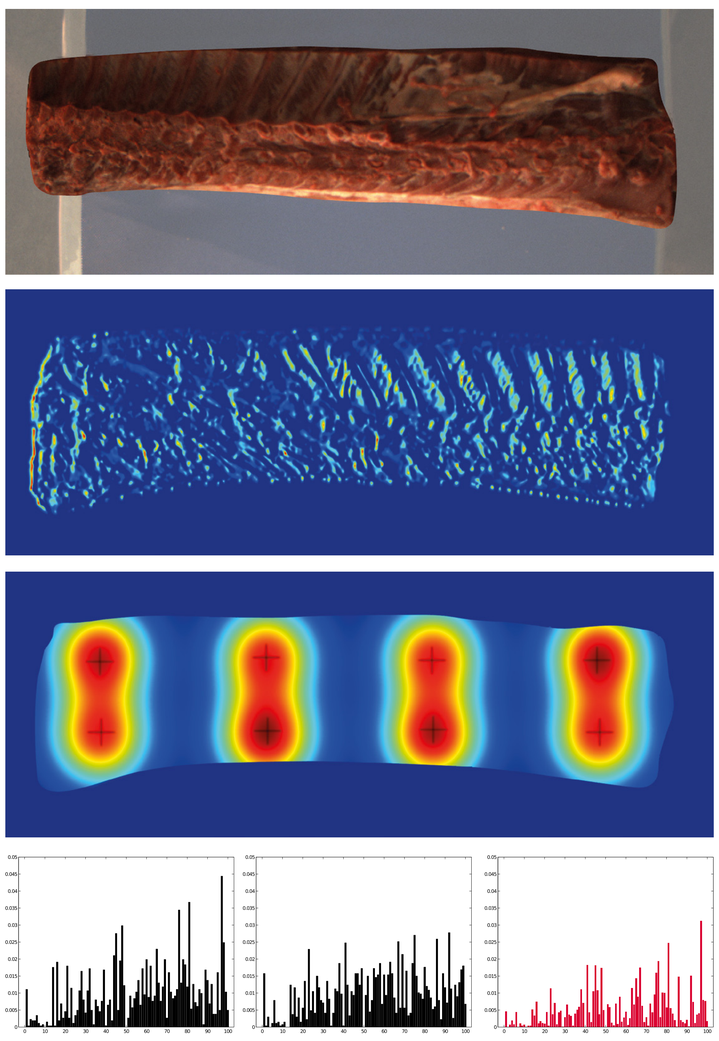
Materials and methods

The experiment was carried out at a commercial slaughterhouse. 40 backs covering both left and right sides of the carcass were selected randomly from the line and measured twice: The day after slaughtering, and again 22 hours after hanging on a "Christmas Tree" in a cooler (4°C room temperature). The still camera system was placed 1 meter above a moving conveyer. We used a Bumblebee XB3 stereo camera with 120 mm baseline. Images from the inner side were used in the analysis.

We matched two sets of images by making an image characterization, which enabled us to measure the similarity between images. The characterization is based on a histogram of image features extracted densely over the meat sample in a single image. Hereby we can measure the visual similarity of pork loin by compairing feature histograms.

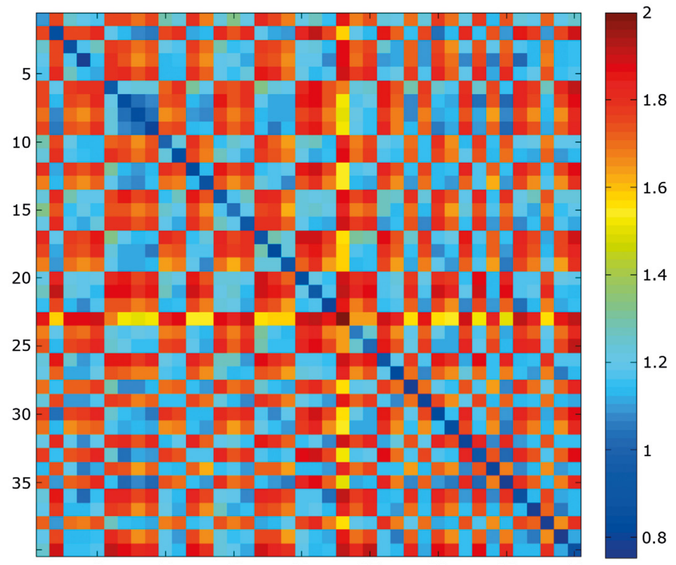
Figure 1 illustrates the procedure.

Results



◀ **Figure 1.** Illustration of the procedure. Top to bottom is the segmentation, the DAISY features, the spatial sampling, image histograms (black) and difference between histograms (red).

▼ **Figure 2.** Matching the similarity of samples before and after storage. Sample number 23 is missing after storage.



Conclusion

We demonstrated the possibility of tracing 39 pig backs stored for 22 hours. Further the method provides means of separating left side from right side backs.

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