

Making Pigs Less Smelly

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Image Analysis for Quality Estimation of Meat Products Before and After Slaughter

As consumers we are determining the quality of meat by different factors, e.g., tenderness, juiciness and flavor. What gives rise to certain quality parameters of the meat is determined by factors influencing the animal from birth to slaughter and again other factors that influence during and after slaughter. Such factors could be the feed, the rigor-mortis process and the packaging of the meat.

Nowadays it is often expensive and time-consuming to carry out analyses that can determine the quality traits of a certain piece of meat. This project concerns the application of image analysis methods in order to characterize these quality traits. The imaging methods that are aimed for, should be non-invasive and with the perspective of being applicable in a production facility. Due to the complexity of meat, the great challenge will be to develop methods that are general and suitable for all cases of meat. The project is a part of the Center for Imaging Food Quality (CIFQ).

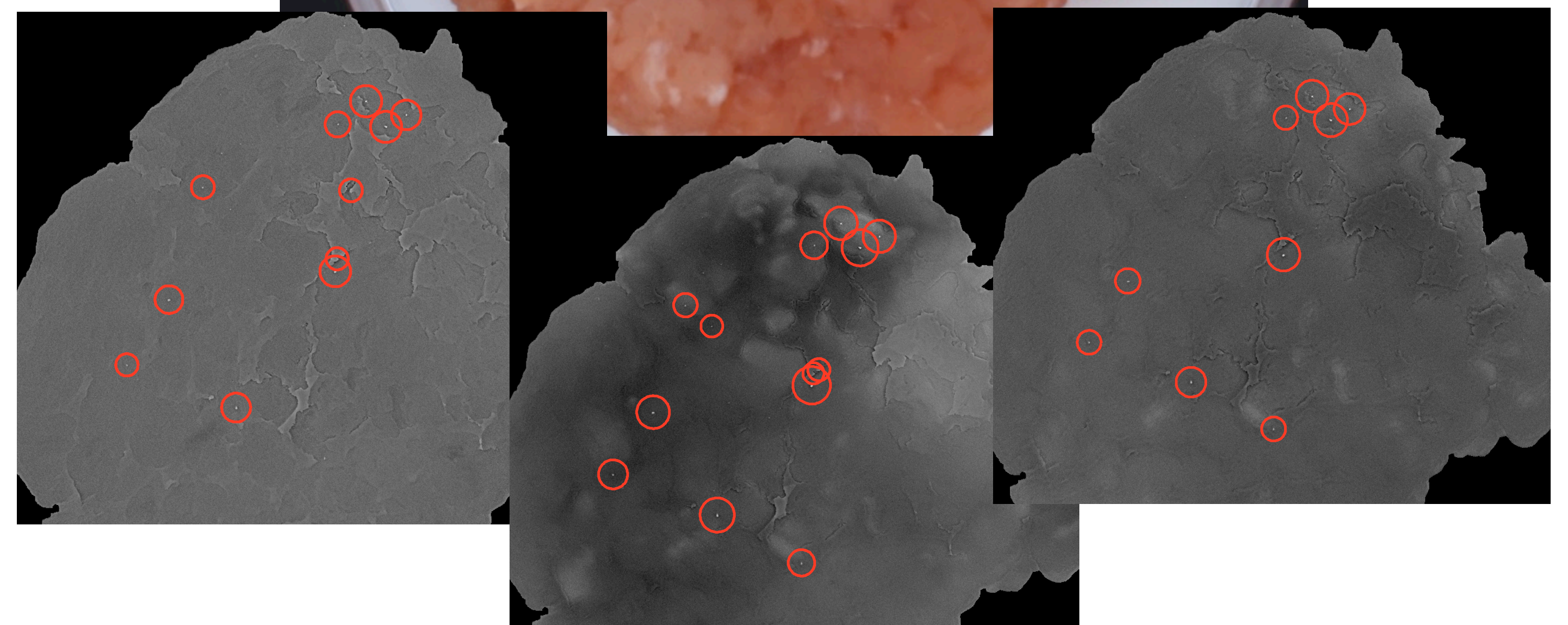
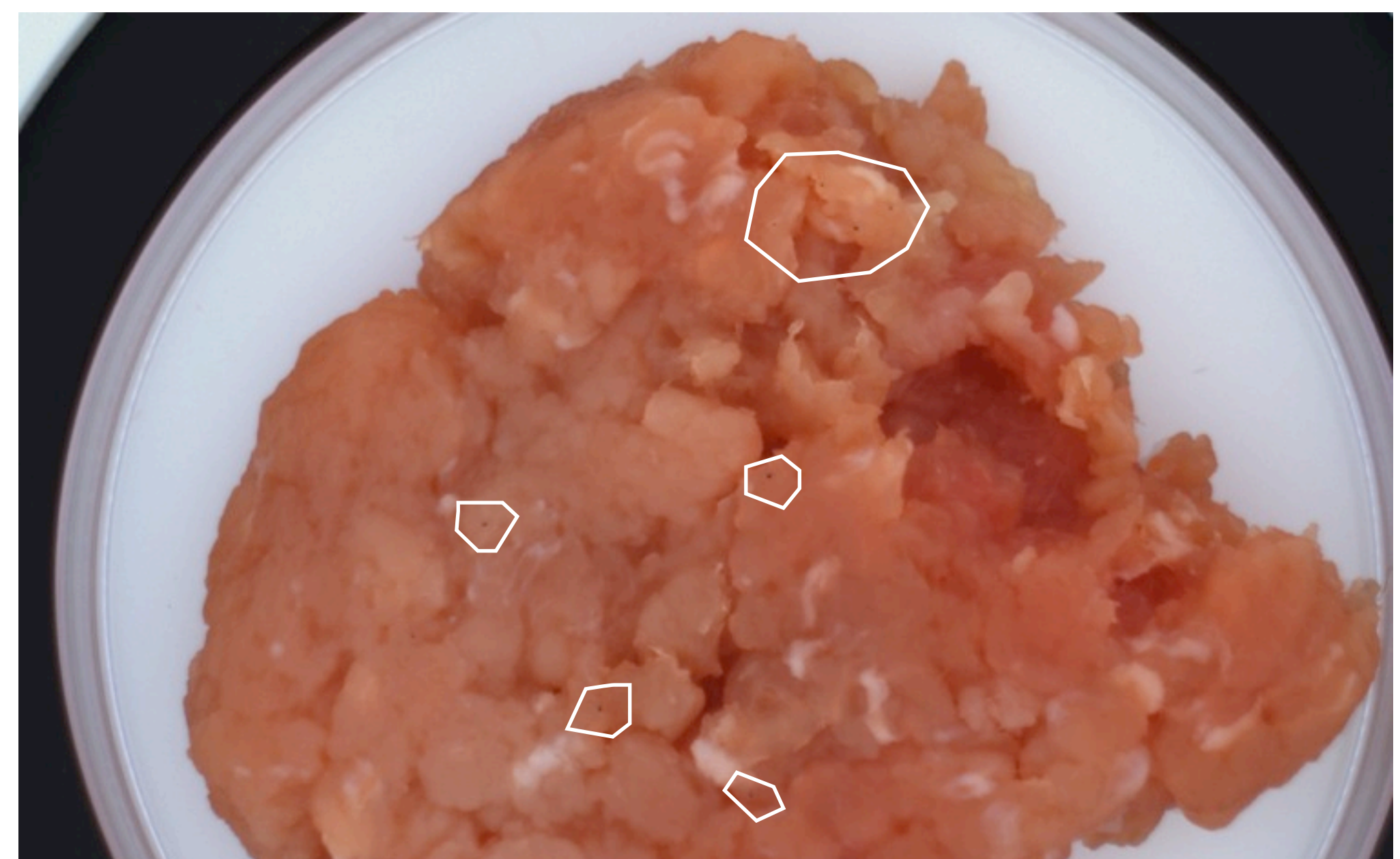
Case 1: Minced Meat

Problem: Packaging atmosphere affects the development of microorganisms in meat. A high oxygen level will increase the growth, thereby spoiling the meat, whereas its absence will lead to a less red color of the meat. The goal is to develop a method for identifying the spoiled parts of the meat from multispectral images.

Method: Samples of minced meat stored at normal and modified air conditions is observed by the VideometerLab for a period of time.

Preliminary result: Identification of microorganisms in an off-color by representing the images with a dictionary build from images of fresh meat. Blob detection on residual images is used to identify black spots.

Challenges: Minced meat consists of meat from different animals and consistency can not be expected from sample to sample. Spoilage by microorganisms gives rise to discolorations on the meat, but the discolorations can still be close to ‘meat-color’.



Case 2: Lard from Porks

Problem: Due to animal welfare it will soon be prohibited to castrate male piglets, which results in the development of the hormones skatole and androstenone in the pig. These two gives rise to unpleasant odors, commonly known as boar-taint, upon heating of the meat.

Method: Feed can influence the fatty acid composition of the muscles and lard of the animal. Samples of lard from organic boars fed with different feed compositions will be investigated by the SLS system developed within the CIFQ project.

Challenges: The goal is to find a correlation between these investigations and the chemical analysis that has been performed of the samples. This could lead to a non-invasive method for determining what the meat of a specific boar will be suited for.



References:

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