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Published in:
Workshop on Farm Animal and Food Quality Imaging 2013

Publication date:
2013

Document Version
Publisher's PDF, also known as Version of record

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Citation (APA):
Nielsen, J. B., & Larsen, A. B. L. (2013). Online Multi-Spectral Meat Inspection. In *Workshop on Farm Animal and Food Quality Imaging 2013: Espoo, Finland, June 17, 2013, Proceedings* (pp. 57). Technical University of Denmark. DTU Compute-Technical Report-2013 No. 12

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Online Multi-Spectral Meat Inspection

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Abstract. We perform an explorative study on multi-spectral image data from a prototype device developed for fast online quality inspection of meat products. Because the camera setup is built for speed, we sacrifice exact pixel correspondences between the different bands of the multi-spectral images.

Our work is threefold as we 1) investigate the color distributions and construct a model to describe pork loins, 2) classify the different components in pork loins (meat, fat, membrane), and 3) detect foreign objects on the surface of pork loins. Our investigation shows that the color distributions can effectively be modeled using the Gaussian mixture model (GMM). For the classification task we build a classifier using a GMM. For detecting foreign objects, we construct a novelty detector using a GMM.

We evaluate our method on a small dataset with mixed results. While we are able to provide reasonable classifications, the multi-spectral data does not seem to offer significant additional information compared to a standard RGB camera. Moreover, the multi spectral images come with the cost of losing pixel correspondences.