



## Online Multi-Spectral Meat Inspection

**Nielsen, Jannik Boll; Larsen, Anders Boesen Lindbo**

*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

[Link back to DTU Orbit](#)

*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). Kgs. Lyngby: Technical University of Denmark. DTU Compute-Technical Report-2013, No. 12

---

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

## Online Multi-Spectral Meat Inspection

Jannik Boll Nielsen and Anders Boesen Lindbo Larsen

Technical University of Denmark, Applied Mathematics and Computer Science

**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.