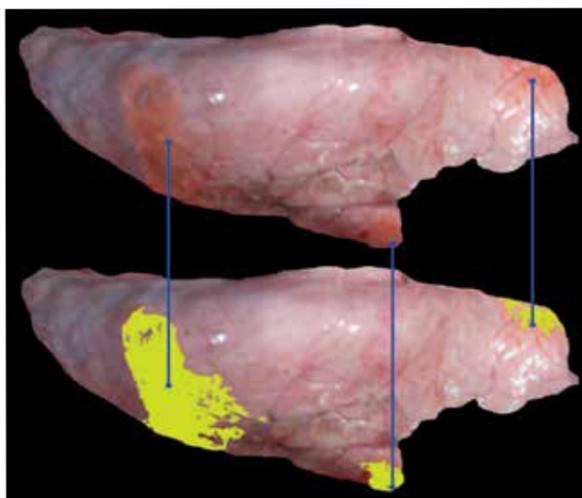


KungFu - Optimization of visual ante-mortem inspection using computer vision

In the beginning of the 20th century the ante-mortem inspection of meat was introduced by the German Professor Dr. Robert von Ostertag. The goal was to contain diseases that could be transferred to humans by infected meat. Nowadays this is a standard procedure done by veterinarians. Due to new European laws in 2014, the ante-mortem inspection has to be done mainly visually to prevent cross-infection which increases the workload of the veterinarians. Concerning pig meat for example, dependent on the size of a slaughterhouse, 200-900 pigs must be inspected per hour. For

evaluation is purely based on the experience of the veterinarian that inspects the meat so that the evaluations are subjective as well.

Computer vision systems can greatly help in visual tasks for quality control and are used in many applications. They can assist in finding anomalies, can be used round the clock and their great advantage is that their evaluations are based on programmed or trained features which will result in more stable, more objective evaluations.



each pig, a veterinarian has 36 to 50 seconds to find one or more of around 150 different diseases/malformations. This high workload raises the question if the quality of the inspection stays the same over time. The

Figure 1:
Quh-Lab Lebensmittelsicherheit
Siegener Str. 29 57080 Siegen

Concerning the inspection of pig meat, there is no ready-made system. To fill this gap is the goal of this cooperation project between our Institute, the enterprise Quh-Lab Lebensmittelsicherheit and the University of Parma, Italy. The system will be installed inside a "fotobox" for better lightning conditions and uses multiple cameras in different spectra for taking images from different directions. The set-up should be modular and flexible so that it can be installed in different slaughterhouses and adjust to the conditions there. With the set-up, a database of images will be created and be annotated by veterinarians. This database will be used to train the computer vision system using deep learning to identify 10 to 20 of the most common diseases and malformations.

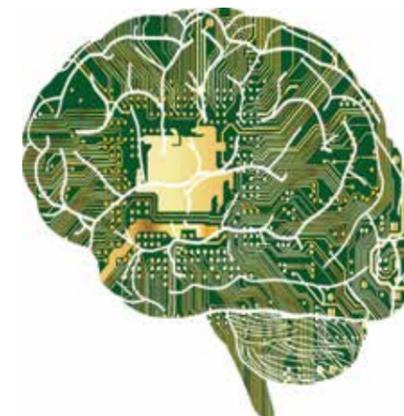


Figure 2 : https://commons.wikimedia.org/wiki/File:Deep_learning.png
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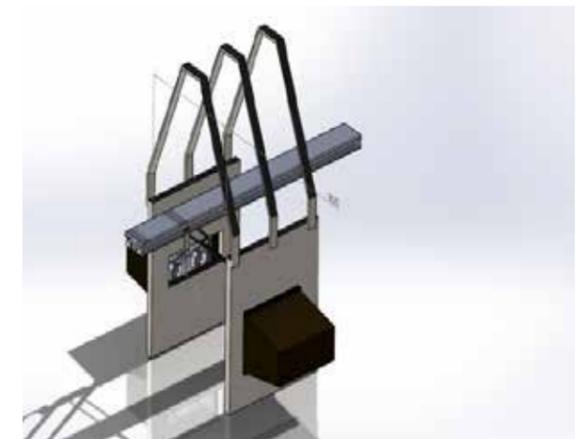


Figure 3:
Paolo Costa + Sara Cottini
Dipartimento di Scienze degli Alimenti e del Farmaco
Università di Parma Via del Taglio, 10 43126 Parma

I Project Management and Execution

Management:

Univ.-Prof. Dr.-Ing. Klaus-Dieter Kuhnert

Contact:

Prof. Dr.-Ing. Klaus-Dieter Kuhnert
Dipl.-Inform. Jan Kunze
Institute of Real - Time Learning Systems
Fak IV, University of Siegen
Hölderlinstr. 3
D-57076 Siegen

E-Mail: kuhnert@fb12.uni-siegen.de
web: <http://www.uni-siegen.de/fb12/ezls/>

Telefon: +49 (0) 271 740-4779
Fax: +49 (0) 271 740-4421

Dr. med. vet. Martin Frettlöh
Quh-Lab Lebensmittelsicherheit
Siegener Straße 29
57080 Siegen

E-Mail: Martin.Frettl Boeh@guh-lab.de
Telefon: +49 (0) 271 - 313 830 - 0

