

## PROGETTI CRPA

Computer Vision-based parameter measurement in meat industry  
for quality indicator identification of raw material

softeco  
sismat  
information technology

### Progetti CRPA

**Programme:**

Finanziamento Regione Emilia Romagna

**Start date:** January 2003

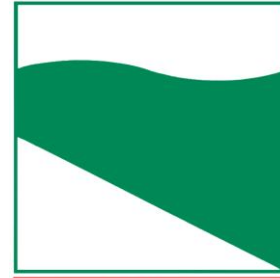
**Coordinator:**

CRPA – Research Centre for Animal Productions (IT)

**Partners:**

CRPA – Research Centre for Animal Productions (IT)  
Softeco Sismat (IT)  
ITALCARNI SpA (IT)  
Istituto Sperimentale per la Zootecnia, Sede di Modena (IT)  
University of Bologna, - DIMORFIPA – Department of Veterinary and Animal Production Morphophysiology - DIMORFIPA (IT)  
Prosciuttificio SAN MICHELE C. s.r.l. (IT)  
Levoni SpA (IT)  
Stazione Sperimentale per l'Industria delle Conserve Alimentari in Parma (IT)  
Technology and Science for Growth S.r.l. (IT)  
ITALCARNI Società Cooperativa Agricola (IT)  
Sassi F.lli S.p.A. (IT)  
Università degli Studi di Sassari (IT)

**Keywords:** computer vision, image processing, segmentation, 3D reconstruction, stereo camera, meat industry, raw material, quality indicator, automatic in-line measurement



Regione Emilia Romagna

[www.research.softeco.it/progetti-crpa.aspx](http://www.research.softeco.it/progetti-crpa.aspx)

**Contacts****Gianni Viano**

Phone: +39 010 6026 338

Fax: +39 010 6026 350

Email: [gianni.viano@softeco.it](mailto:gianni.viano@softeco.it)

**Loris Vosilla**

Phone: +39 010 6026 335

Fax: +39 010 6026 350

Email: [loris.vosilla@softeco.it](mailto:loris.vosilla@softeco.it)

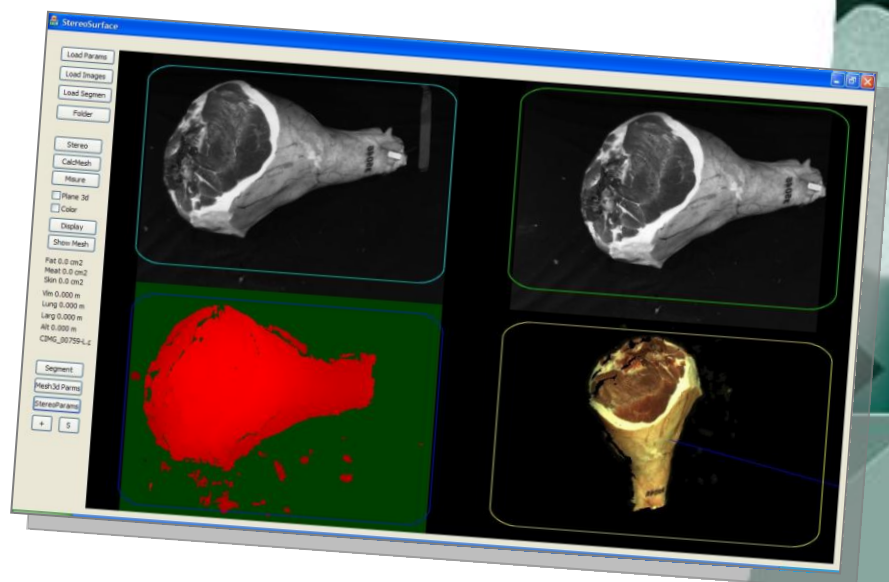
## OVERVIEW

One of the major problems of meat industry - and more particularly of the cured ham industry - is the **large variability of the raw material**. As a result, there is a significant production waste and consumers have sold ham of very different qualities.

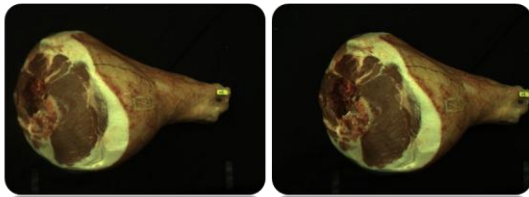
Furthermore, numerous studies have demonstrated the influence of some animal characteristics on the final product quality and some specific indicators have been identified. The automatic in-line measure of such parameters is a main objective for meat transformation industry in order to adapt meat process to input raw material quality.

This objectives has been pursued in a series of **four projects from 2003 to 2009** which addressed several issues from **quality indicator identification** to **automatic in-line measurements**.

The definition of parameters that can be measured without contact with the raw meat has been a key drive for the research which lead to the adoption of **Computer Vision technology for parameter measurement**.



## RESULTS



Left image

Right image

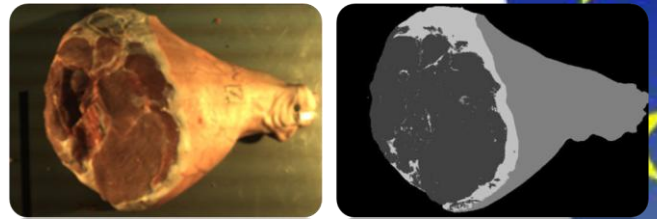
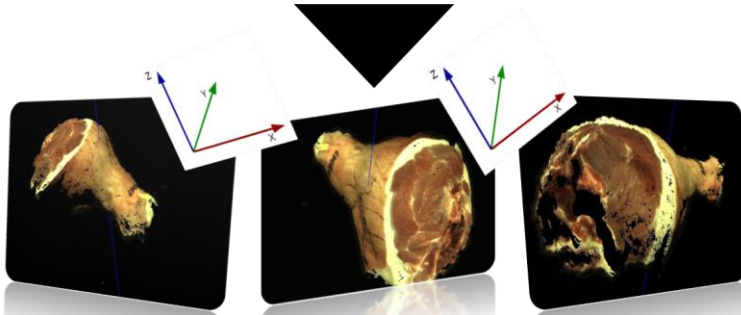


Image segmentation



3D model reconstruction



Fat recognition



Image acquisition and shape analysis

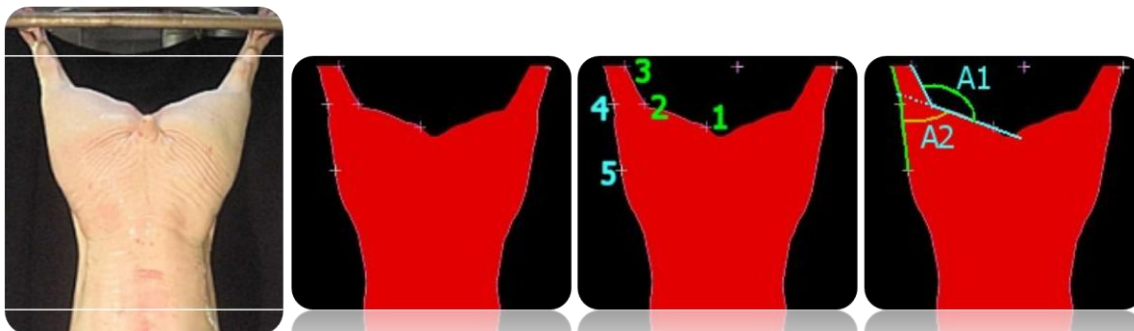


Image acquisition, feature detection and shape classification