

3D imaging prospects in the meat industry

R. van Liere

Centrum Wiskunde en Informatica

FleX-ray scanner @ CWI

Scanner



Concept



Technologies:

- Conventional x-ray detector
- Medipix3 spectral detector
- High-precision programmable motors

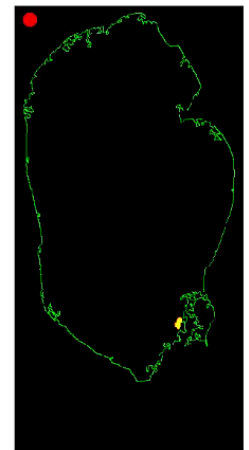
Partners:

- CWI
- NIKEF
- ASI
- Xre

Requirements in meat industry

- Improved quality control
- Hi-throughput
- Lot size = 1

- State-of-the-Art
 - 2D x-ray imaging
 - Morphological Feature Detection
 - Example: bone detection in chicken fillet
 - +/- 3mm bone
 - Dual-energy x-ray
 - Quantity: 5K / hour



Vision

- High-throughput 3D imaging of morphological and chemical properties in meat products.
- Sample applications:
 - Food safety: e.g. active bacteria count, feed contamination
 - Foreign object detection: e.g. plastic, metal, rubber, hair, etc
 - Meat quality: e.g. tenderness, fat detection, blood spot detection
- Envisioned Technologies:
 - Limited angle conventional x-ray 3D CT (morphology)
 - Spectral CT (chemical concentrations)
 - Novel methods to correlate morphological information with chemical concentrations