Visual Computing and Machine Learning@ INESC Porto

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INESC Porto :: UTM

1. **Information Processing and Pattern Recognition**
   i. **Visual Computing and Machine Learning (VCMI)**
   ii. Sound and music computing
   iii. Network information processing
2. Communications networks
3. Optical technology and electronics
4. Multimedia communications technologies

Our Team

- Jaime S. Cardoso, PhD,
  Assistant Professor DEEC/FEUP
- Luís Corte-Real, PhD
  Associate Professor DEEC/FEUP
- Lucian Ciobanu, PhD
- Pedro Carvalho, PhD
- Ana Rebelo, PhD
- Hélder Oliveira, PhD Std.

- Inês Domingues, PhD Std.
- Samaneh Khoshrou, PhD Std.
- Ana F. Sequeira, PhD Std.
- Eduardo Marques, PhD Std.
- Anisa Allahdadi, PhD Std.
- João Carlos Monteiro, PhD Std.
- Hooshiar Zolfagharnasab, PhD Std.

- João Pedro Monteiro, Researcher
- Juliano Murari, MSc Std
- Joana Fonseca , MSc Std
- Rui Silva, MSc Std

VCMI – Visual Computing and Machine Intelligence

- **Main Lines of Activity**
  - Computer Vision
  - Machine Learning
  - Decision Support Systems

Research Topics

Medical Image Processing

Video Object Tracking
(Surveillance, Sport analysis, high level behaviour analysis, industrial applications)

Biometrics
Unconstrained Pattern Recognition

Structured **Handwritten Document Analysis**

Learning

Our Projects

- PICTURE, EU FP7
- 3dBCT, FCT
- BCS (Breast Cancer Sentinel), QREN

- SARA (Road Asset Management), QREN

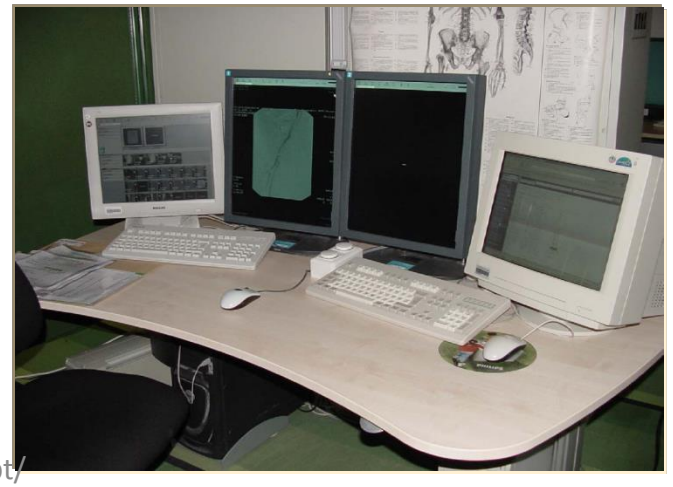
- Future Cities, EU FP7

- NeTS, FCT CMU|Portugal

- RetailPro, QREN

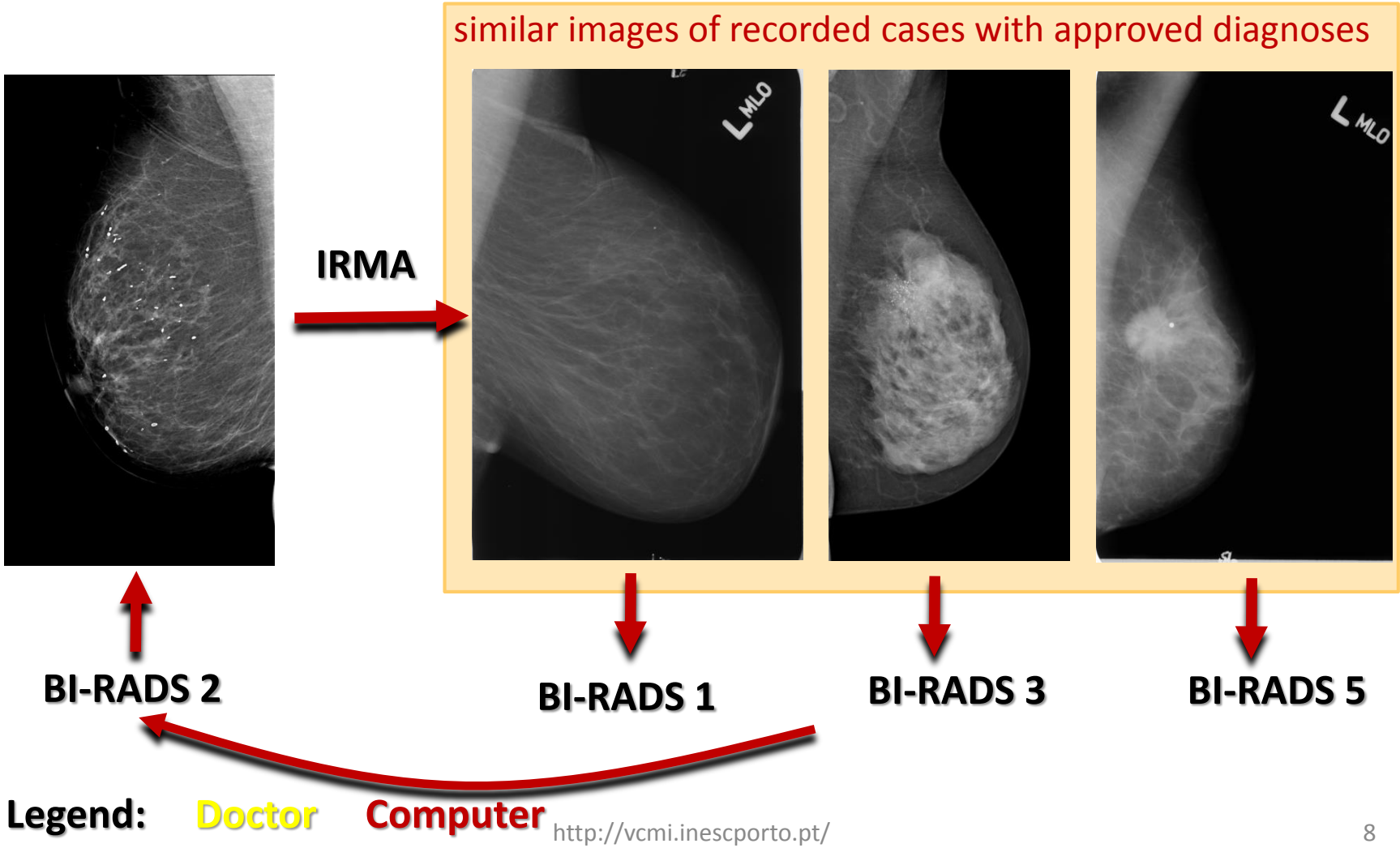
Semantic PACS

- Integration of Content-based Image Access in the image management of radiological routine
  - Image management of radiological routine
    - PACS – Picture Archiving and Communication System
  - Content-based Image Access
    - IRMA – Image Retrieval in Medical Applications
- Current PACS lack support to:
  - Diagnose
  - Case-based reasoning
  - Teaching / learning



Semantic PACS

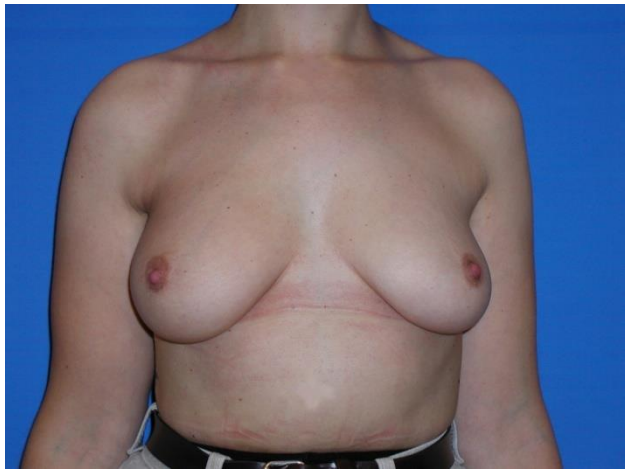
- CAD – Computer-aided Diagnosis



Aesthetical Assessment of Breast Cancer Conservative Treatment

Breast Cancer Conservative Treatment (BCCT) has been increasingly used over the last few years as a consequence of its more acceptable cosmetic outcome when compared with mastectomy, but with identical oncological results

Not at all a standardized treatment!

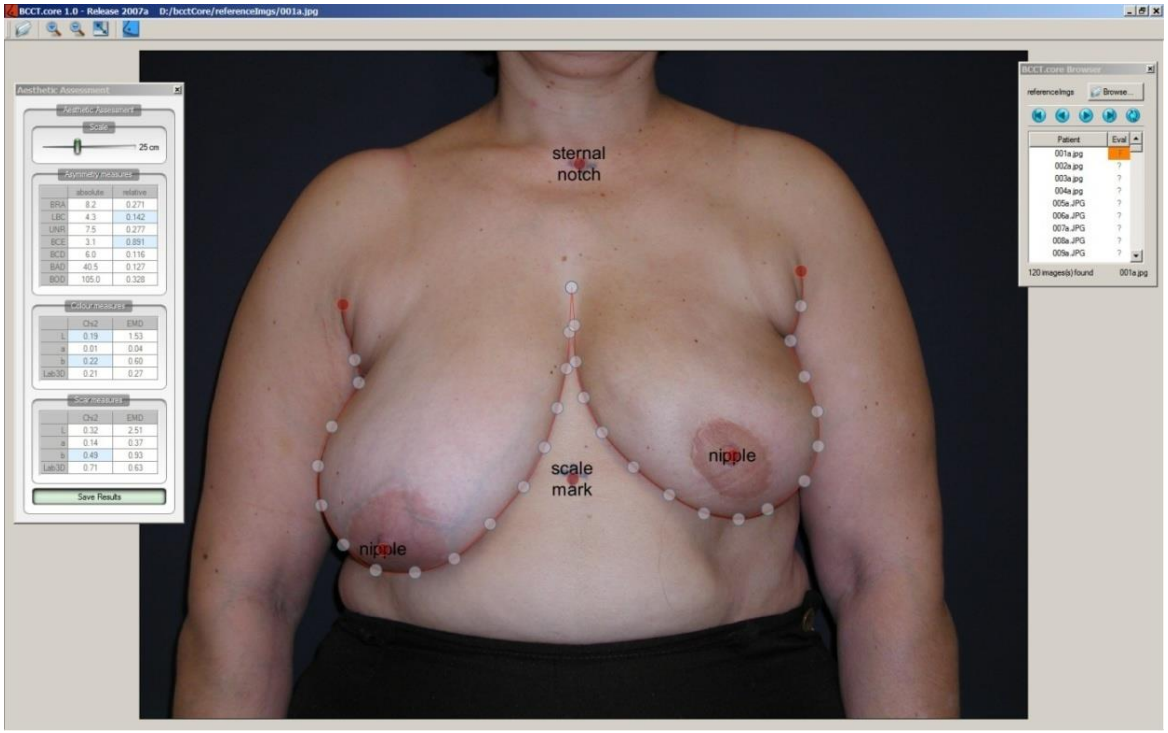


Aesthetical Assessment of Breast Cancer Conservative Treatment

- BCCT.core

Output:

- Excellent
- Good
- Fair
- Poor



BCCT.core, is being used by many international groups in prospective studies: Nottingham Breast Institute, UK; Leiden University Medical Centre, The Netherlands; Cancer Care Center, Sydney, Australia; University of Heidelberg, Breast Center, Heidelberg, Germany; Medical University, Vienna, Austria; etc.

Unconstrained Biometrics

Key Partners

ESMAE

Champalimaud Foundation

PHILIPS
sense and simplicity

Microsoft Development Center Portugal

Universidade do Porto
FEUP Faculdade de Engenharia

U.PORTO
FMUP FACULDADE DE MEDICINA UNIVERSIDADE DO PORTO

pluX

SÃO JOÃO

THINK RETAIL INNOVATION

STRONG SEGURANÇA

EMÍLIO DE AZEVEDO CAMPOS, S.A.