



## PMS Research Paris Medical Imaging Systems Group (Medisys)

August 2004



### Research: activities

#### Product divisions:

- Consumer Electronics
- Domestic Appliances
- Semiconductors
- Lighting
- Healthcare Systems



Research in Healthcare: Aachen, Hamburg, Briarcliff, Eindhoven, Paris

Philips Research Paris (MEDISYS), long story in Healthcare: Infrared, Ultrasound, Nuclear Medicine, Image Processing

## Medisys: mission statement

- *Design Image Processing solutions for all healthcare products (Algorithms and Prototype Implementations)*
- *Target =*
  - *ease-of-use,*
  - *optimal image quality*
  - *Higher throughput for clinical applications*
- *Expertise in =*
  - *Image Enhancement and Feature Extraction (object detection and tracking)*
  - *Segmentation (modeling)*
  - *Registration*

3

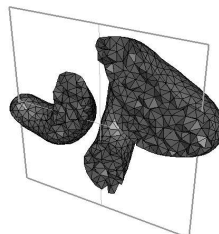
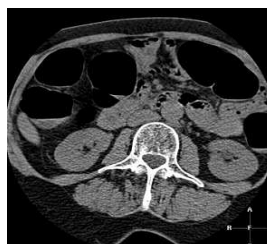
## MEDISYS

### Customers:

#### •single modality

- Ultrasound
- XRD
- MIT
- CT

#### •multi-modalities



### Staffing:

- 21 scientists
- 1 PhD students
- 2 to 4 trainees
- 1 GL + secretary

4

## Medisys: capabilities

### Image processing and analysis (2D, 2D+t, 3D, 3D+t)

#### Algorithms for:

- Noise reduction
- Image enhancement
- Feature extraction
- Segmentation
- Registration
- Pattern recognition
- Classification

#### Implementation:

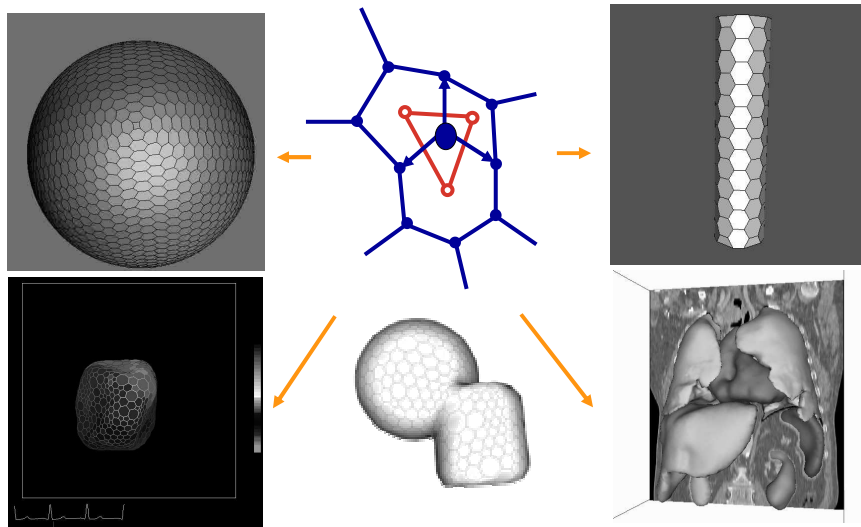
hFast implementation  
hReal time processing  
hProgrammable platforms

Medical applications

5

## Medisys: Projects/Achievements

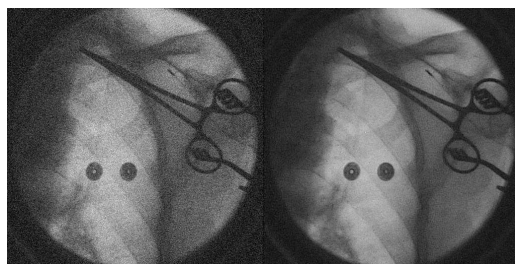
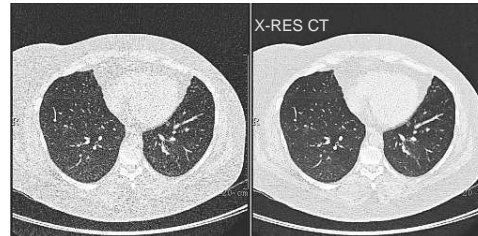
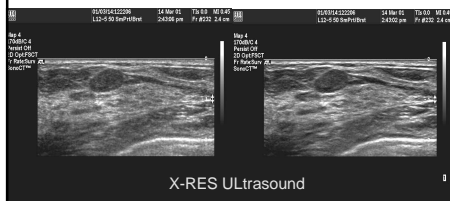
MIT: generic segmentation based on active objects



6

## Medisys: Projects/Achievements

Cross PMS: noise reduction



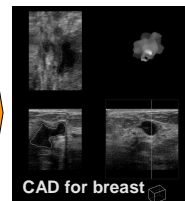
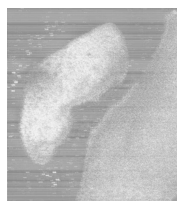
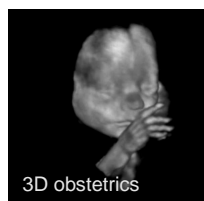
From Spatial to  
Spatio-temporal filtering

From 2D to  
3D

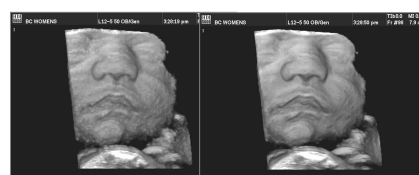
7

## Medisys: Projects/Achievements

Ultrasound General Imaging



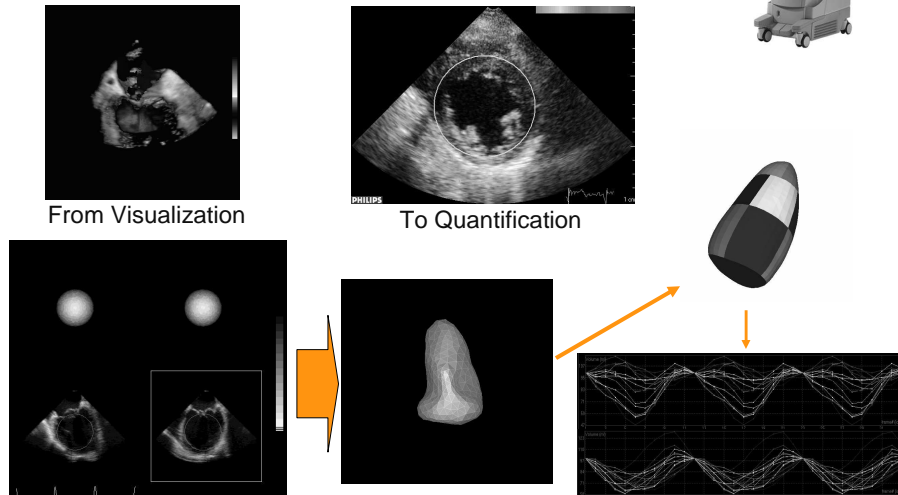
Noise Reduction



8

## Medisys: Projects/Achievements

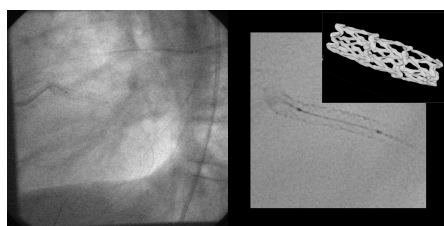
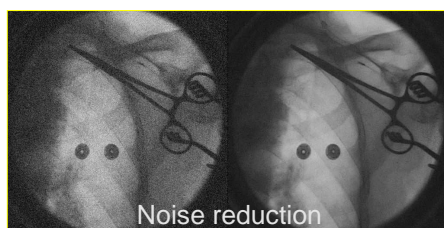
### Ultrasound Cardiology



9

## Medisys: Projects/Achievements

### X-Ray



Feature extraction, stent boosting

Real-time implementation  
on programmable  
platforms

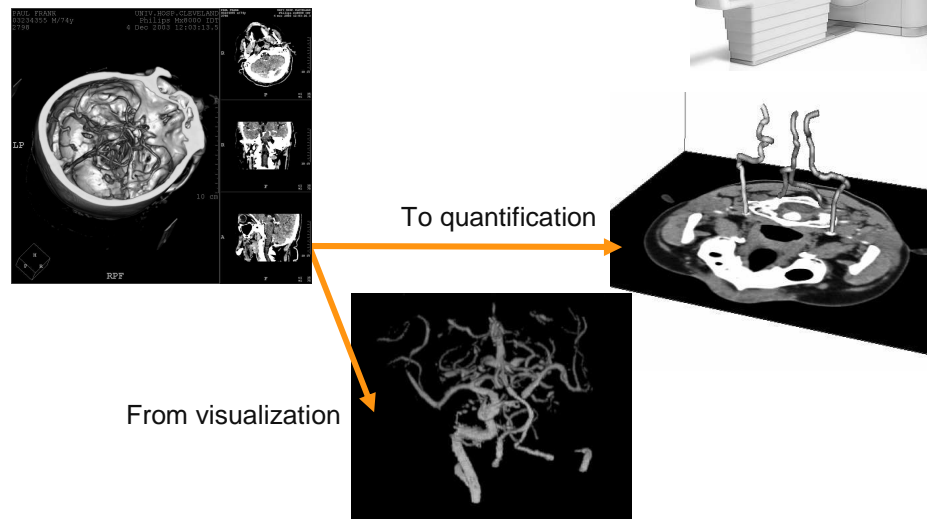
- Mercury
- PCs

Middleware development

10

## Medisys: Projects/Achievements

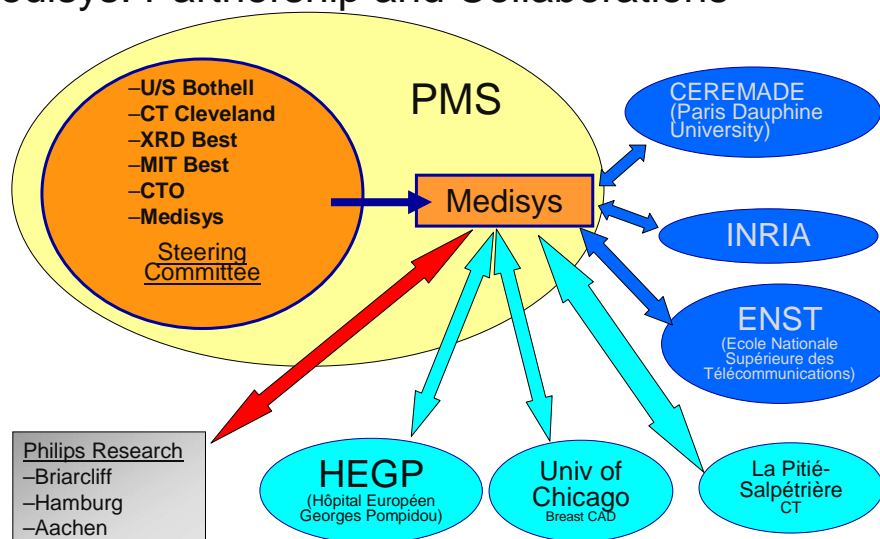
CT: bone removal, vessel/organ segmentation



From visualization

11

## Medisys: Partnership and Collaborations



- Philips Research
  - Briarcliff
  - Hamburg
  - Aachen

**HEGP**  
(Hôpital Européen  
Georges Pompidou)

Univ of  
Chicago  
Breast CAD


La Pitié-  
Salpêtrière  
CT

CEREMADE  
(Paris Dauphine  
University)

INRIA

**ENST**  
(Ecole Nationale  
Supérieure des  
Télécommunications)

# Medisys



- U/S Bothell
- CT Cleveland
- XRD Best
- MIT Best
- CTO
- Medisys

Steering Committee

12

## Medisys: People

