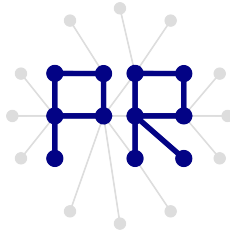


# Medical Image Processing - Project

## Introduction



Joanna Czajkowska, PhD

Research Group for Pattern Recognition  
Institute for Vision and Graphics, University of Siegen

## Place/Time

H-C 6336/37, 8:30 - 10:00

## Lecturer

Dr. Eng. Joanna Czajkowska, H-B 6415,  
joanna.czajkowska@uni-siegen.de

## Recommendation

Master Students in Computer Science

## Schedule of the Exercises

- 17.10 Introduction
- 24.10 Image Processing in Matlab
- 31.10 Pre- processing
- 14.11 Clustering
- 21.11 Region Growing / Fuzzy Connectedness
- 28.11 Mathematical Morphology
- 05.12 Object Properties
- 12.12 CAD Station State of the Art / Final Results

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- Consultation  
19.12, 09.01, 16.01, 23.01, 30.01
- 06.02 Presentation

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- Consultation  
19.12, 09.01, 16.01, 23.01, 30.01
- 06.02 **Presentation**

## Information

- Please bring your own laptop to the project course
- Please install the newest available Matlab version on your laptop

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## The Rules of Completing the Course

- Registration for the course in the LSF is obligatory.
- Project is held every week according to the schedule given before.
- Presence on classes 1-8 and 15 is mandatory.
- Presence on classes 9-14 depends on the students needs.
- Each Student is allowed one unexcused absence during the semester. (classes 1-8 and 15). Each subsequent absence should be confirmed by a sick leave.
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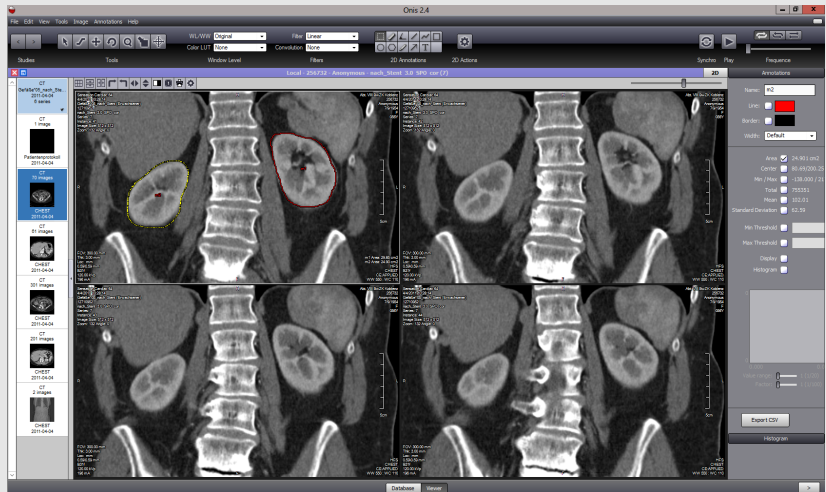


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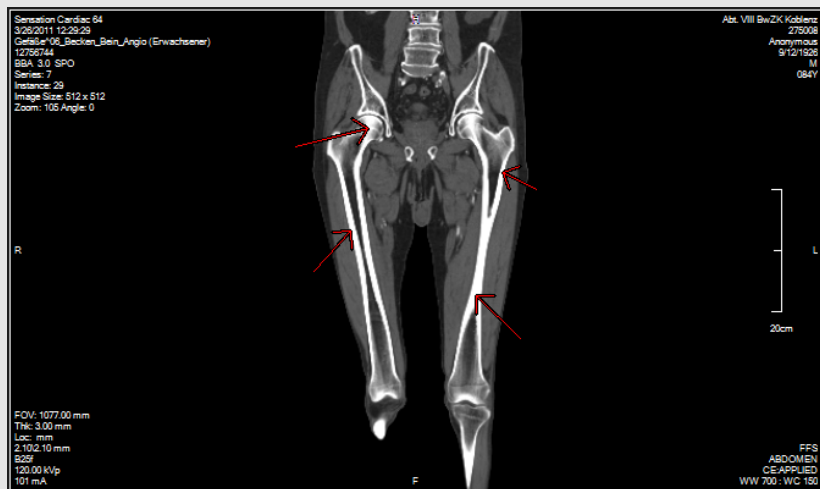
# Project Topics (for 2-person groups)

- Development of Methodology for Automatic Kidneys Segmentation in CT Images/Series



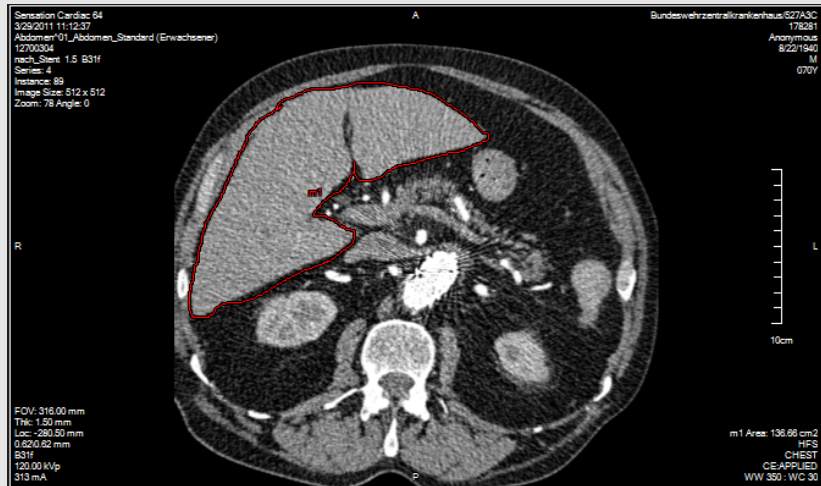
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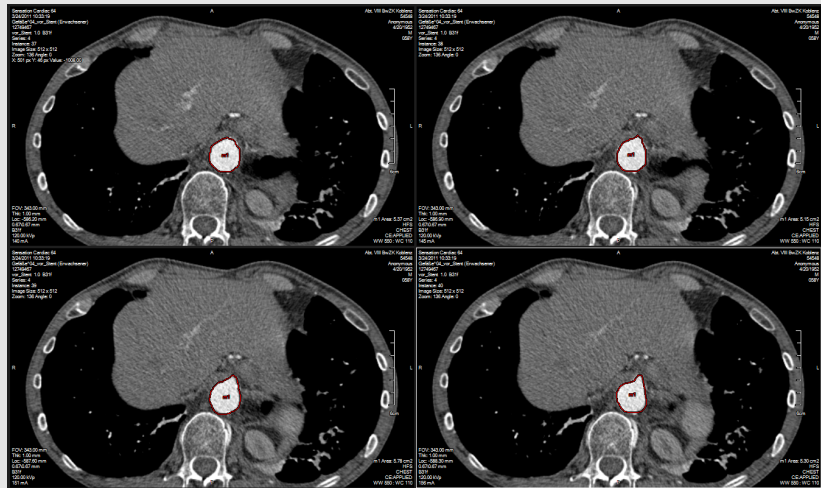
## Project Topics (for 2-person groups)

- Development of Methodology for Automatic Liver Segmentation in CT Images/Series



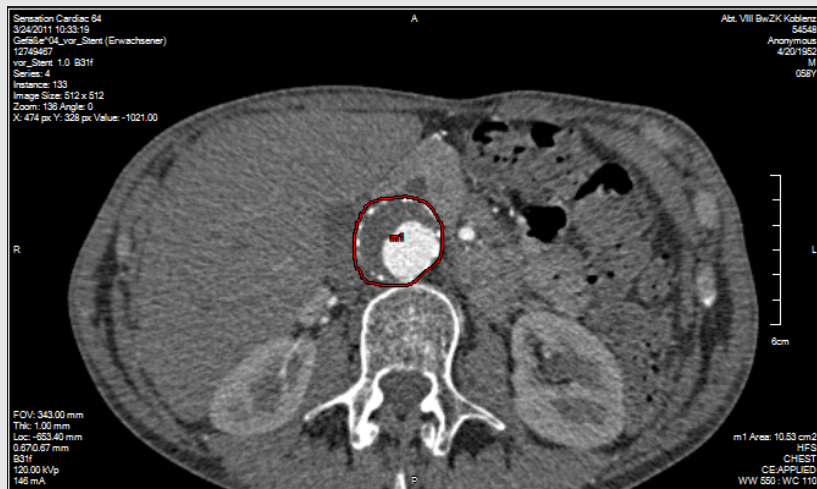
## Project Topics (for 2-person groups)

- Development of Methodology for Aorta Segmentation in CT Images/Series



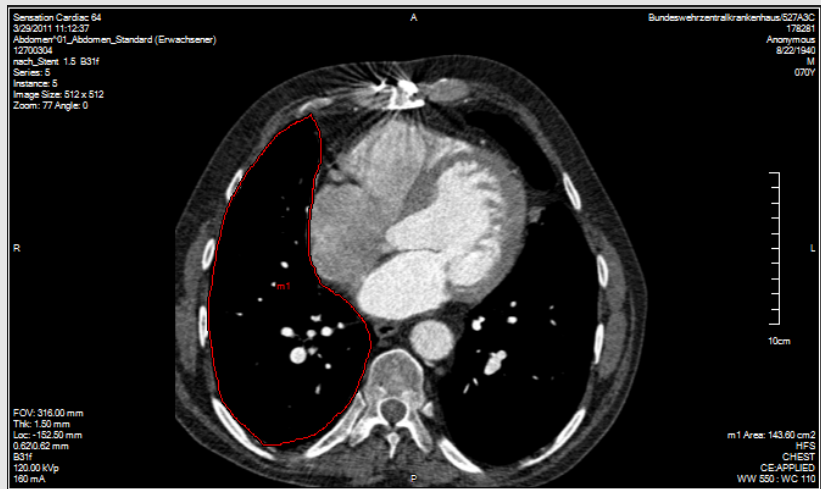
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- Development of Methodology for Aortic Aneurysm Segmentation in CT Images/Series



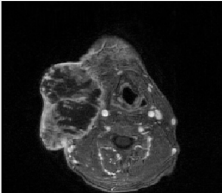
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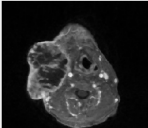
- Development of Methodology for Automatic Lung Segmentation in CT Series



# CAD Example

projekt


  
OBRAZ WEJŚCIOWY

  
EFEKT POPRZEDNICH PRZEKSZTAŁCEŃ

WPISZ WARTOŚĆ PROGU

Zalecana wartość progu 446

Maksymalna wartość progu 1064

  
EFEKT AKTUALNYCH PRZEKSZTAŁCEŃ

Etapy przetwarzania

- Wczytaj
- Filtr medianowy
- Binaryzacja**
- Dylatacja
- Pogrubienie krawędzi
- Erozja
- Wypełnienie otworów
- Wyczyszczenie elementów nadmiarowych
- Transformata trafi-nie-trafi
- Ponowna erozja
- Zaznacz guz
- Reset