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Winter 2008

### CEG 790-01: Medical Image Analysis

Arthur A. Goshtasby

*Wright State University - Main Campus*, [arthur.goshtasby@wright.edu](mailto:arthur.goshtasby@wright.edu)

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# CEG790 - Medical Image Analysis

Winter 2008

Class Hours: Tu, Th 2:15 - 3:30 PM

Instructor:

Arthur Goshtasby

Location: 406 RC

Office Hours: M, Tu, W, Th: 1:00 - 2:00 PM

E-mail: agoshtas@wright.edu

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## Call Number:

29278 - CEG790 - 02

## Credits:

4

## Prerequisites:

Graduate standing. Some background in image processing or computer vision is required.

## Textbook:

Handbook of Medical Imaging  
Volume 2: Medical Image Processing and Analysis  
Milan Sonka and J. Michael Fitzpatrick (Editors)  
SPIE Press, 2000.

## Purpose of Course:

This course covers various medical imaging sensors and various algorithms for analysis of images from modality sensors.

## Contents:

1. **2-D and 3-D image segmentation**
2. **2-D and 3-D image features**
3. **2-D and 3-D image registration**
4. **Validation of image analysis techniques**
5. **Echocardiography**
6. **Cardiac image analysis**
7. **Vascular imaging and analysis**
8. **Computer aided diagnosis in mammography**
9. **Pulmonary imaging and analysis**
10. **Brain image analysis and atlas construction**
11. **Tumor segmentation and analysis**

## Learning Goals:

Basic algorithms for analysis of medical image are covered and some of the algorithms are implemented as class projects. Additional papers on related topics are also studied.

## Projects:

There will be two programming assignments, a midterm exam, and a final report and presentation. Programming assignments will be in C/C++ or MATLAB. Each student is also required to read a few papers on a topic of interest, summarize the results in a class presentation and write a report on the topic.

## Grading Policy:

The programming assignments will worth 40 points, the presentation and the report will worth 30 points, and the midterm exam will worth 30 points.

## Calendar:

Project 1	Handed out: 1/17	Due: 1/5
Project 2	Handed out: 2/7	Due: 2/26
Midterm exam	On 2/19	
Presentations	On 3/11 & 3/13	
Final Report	Due: 3/18	