

# Final Project Details

Methods in Medical Image Analysis - Spring 2020  
 16-725 (CMU RI) : BioE 2630 (Pitt)  
 Dr. John Galeotti



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## Code Expectations

- Use ITKv4/5 or SimpleITK
- Show creativity and/or experimentation, such as (choose one or more):
  - Carefully adjust several parameters
  - Validation, etc.
  - Combine filters in a novel way
  - Write you own filter or other large piece of unique code
  - Conceive and implement a new idea for image analysis
- Insufficient:
  - Do "a little bit more" than the big segmentation homework assignment
  - Just connect several filters together & wrap in a GUI
  - Copy directly from software guide with little original work
  - Claim to have optimized 12 parameters but don't provide sufficient evidence
- Emailed project proposals due by the night of Tuesday March 17<sup>th</sup>

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## Code Grading Criteria

11 points:	<u>Originality</u> and/or <u>documented experimentation</u>
7 points:	Code works
4 points:	Submission details, including (but not limited to): ReadMe.txt & other documentation Code comments
3 points:	Wow-factor (your project stands out from the rest)

ALSO REQUIRED—May FAIL without these:

- Must use (Simple)ITK
- If you use C++, your C++ code must successfully compile
- Python scripts (if used) must execute without interpreter errors. (i.e., no syntax errors)

Total: 25 points

Final grade based on how your code works on your data when the grader (compiles and) runs your code, unless you make previous arrangements with the grader and myself ahead of time.

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## Code Submission Details

- Include a README.txt file that lists:
  - *All* necessary instructions for the grader to compile (if necessary) and run your code.
  - Your desired parameters for any (command line) arguments to your program.
- Submit any data needed to run your code.
  - Unless other arrangements have been made with your grader, such as if your input images are very large.
- It is your responsibility to make it very easy for your grader to run, test, and understand your code.
- Due date: Final project code committed to svn by 11:59 PM Wednesday April 22<sup>nd</sup>

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## Presentations

- Due date for presentation slides
  - Everyone's *final* slides due *first* day of presentations
  - Committed to svn by 10 AM on April 13<sup>th</sup>
    - proj/presentation\_lastname\_firstname.pptx
  - This is *before* your code is due
  - Order of actual presentations TBD, 5-6 per day
- Slides must contain partial/preliminary results
  - Results with unoptimized parameters
    - and/or—
  - Intermediate output generated part-way through your algorithm

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## Presentation Grading Criteria

- Background (3 points,  $\geq 2$  minutes):
  - What is the general problem you are trying to solve?
  - Why is it interesting or important?
  - Why is it difficult? (Why is it not already solved.)
- Method (5 points for *presentation* of methods,  $\geq 3$  minutes)
  - What is your approach (big picture)?
  - How did you implement it in ITK?
  - What were the main implementation challenges you faced?
    - E.g. finding parameters that worked
    - E.g. coding new functionality
  - Feel free to go over coding details as useful for the audience...
    - Don't spend much time repeating stuff we've already covered in class.

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## Presentation Grading Criteria, contd.

- Results (3 points for presentation of results,  $\geq 2$  minutes):
  - Pretty pictures, numerical results, graphs and charts, etc.
  - Is it easy to understand how you did (or will most likely do)?
  - Did you accomplish your goal for your project?
  - How has this helped your research?
- Wow-factor (2):
  - Points reserved for exceptional presentations
- Non-technical stuff (2):
  - Time length: **8.0-12.0 minutes** (loose points if outside this range)
    - You will be forced to stop at ~13 minutes.
  - Public speaking stuff: clarity, polish, dressed professionally, etc.
  - This is important for your overall graduate education!
- Overall general guideline: give your presentation as if you were at a scientific conference or workshop.

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## Presentation: Other Details

- Your presentations will probably be posted to the password-protected part of the website
  - Unless you explicitly tell me that you either don't want it posted at all, or (contrarily) that you want it posted publicly.
- We will try to run all the presentations from a single laptop running PowerPoint
  - Let me know if (and why) this doesn't work for you
- Please bring your own laptop as a backup, if possible.
  - If your laptop needs a VGA or HDMI adapter, bring it too.

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