BME42-731/ ECE18-795/CB02-740 Bioimage Informatics
Spring 2012
Reading Assignment #1

Assigned on Jan-23-2012
Due on Feb-01-2012 in class or by 5PM at TA's office

A. Overview

This reading assignment serves two main aims:
    1) To provide a general overview of bioimage informatics.
    2) To assist you to start developing your own understanding of bioimage informatics.

B. Instructions
Write a report that briefly discusses the following topics (see format instructions in Section D)
    - What is bioimage informatics? Where does it come from? What is it for?
    - What are the problems to be solved in bioimage informatics?
    - What are the similarities and differences between bioimage informatics, computer
      vision, and medical image analysis?
    - Any of your thoughts about this area.

C. References

You are required to read the following four papers. It is expected that you will prepare your report based on your understanding of these papers.

1. H. Peng, Bioimage informatics: a new area of engineering biology, *Bioinformatics*, vol. 24, pp. 1827-1836, 2008.

2. G. Danuser, Computer vision for systems biology, *Proc. IEEE 2006 Int. Symp. Biomedical Imaging (ISBI)*, 241-244.

3. G. Danuser, Computer vision in cell biology, *Cell*, vol. 147, pp. 973-978, 2011.

4. R. Pepperkok and J. Ellenberg, High-throughput fluorescence microscopy for systems biology, *Nature Review of Molecular Cell Biology*, vol. 7, pp. 690-696, 2006.

The following two papers are not required but recommended reading.

1. J. Swedlow and K. Eliceiri, Open source bioimage informatics for cell biology, *Trends in Cell Biology*, vol. 19, pp. 656-660, 2009.

2. J. Swedlow, et al, Bioimage informatics for experimental biology, *Annual Review of Biophysics*, vol. 38, pp. 327-34, 2009.

C. Report format

The report, including references, must not be more than 2 pages. Reports longer than 2 pages cannot be accepted.

Page size: letter
Line space: single
Page margins: 1 inch on each side (top, bottom, left, right)
Font size: 12 points font for the main text; 10 points for listed references

D. Some general guidelines on preparing a reading report

1. The single most important guideline regarding preparing a report is to think independently and use your own words. Avoid literal duplication of words from the references since otherwise it could run the risk of unintentional plagiarism
http://www.studentaffairs.cmu.edu/acad_integ/acad_integ_text.html.
If you must cite the original text, clearly mark your citation using quotation marks.

2. Organize your report into sections and use section titles. This substantially improves readability.

3. Avoid long paragraphs. Instead, try to break them up into logically coherent short paragraphs.

4. Pay attention to details. Be sure to cite your references properly. If you are not sure how to make citations, follow the format of a research journal.