BME42-731/ ECE18-795/CB02-740 Bioimage Informatics

Spring 2014

Reading Assignment #6
Assigned on Apr-21-2014
Due on May-05-2014 by 5PM at TA's office

A. Overview

This reading assignment aims to provide an overview of contemporary single particle tracking techniques.

B. Instructions

Write a report of no more than **two** pages in total based on reading of the following paper.

- Chenouard et al, Objective comparison of particle tracking methods, *Nature Methods*, vol. 11, pp. 281-289, 2014.

Briefly summarizes its main conclusions. For each main conclusion, briefly explain its technical meaning.

You can download these papers from their journal websites. Their PDF copies can also be downloaded from Blackboard.

C. Report format

C.1 General formatting requirements

Page size: letter
Line space: single
Page margins: 1 inch on each side (top, bottom, left, right)
Font size: 11 or 12 points font for the main text; 10 points for listed references

C.2 Detailed requirements

Please write your report using the following structure of organization.

Title
Choose a title for your report. Also remember to number the assignment.

Author information
Remember to include your name here.

Section 1: Summary
Use this section to give a concise summary of key messages/ideas in the reference articles.

Section 2: Introduction/background
Use this section to provide relevant background information.

Section 3: Detailed summary

Use this section to provide a more detailed summary of important information in the references.

Section 4: Discussions

Use this section to provide your opinions and critical comments on the subject.

Section 5: References

List all references here. Be sure to format properly.

D. Some general guidelines on report writing

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.

E. References for further reading

Additional references are provided for students who are interested in learning more about the topic of the assignment.

[A1] S. Baker et al, A database and evaluation method for optical flow, *International Journal on Computer vision*, vol. 92, pp. 1-31, 2011. *This paper provides a comprehensive review of optical flow algorithms.*

[A2] S. Baker and I. Matthews, Lucas-Kanade 20 years on: a unifying framework, *International Journal of Computer Vision*, vol. 56, pp. 221-255, 2004. *This paper provides a detailed and updated introduction to the Lucas-Kanade algorithm.*

[A3] C. Veenman et al, Resolving motion correspondence for densely moving points, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 23, pp. 54-72, 2001. *This paper provides a detailed introduction to the linear assignment algorithm for particle tracking.*