

Assignment 8
CS 410/510: Information Retrieval on the Internet
Due Tuesday March 6, 2007
8 points

Goal: The goal of this assignment is to direct your attention to certain points in the reading assignment and to encourage you to think about what you are reading.

Details:

There are two papers that are required readings for the lectures about multimedia retrieval. Links to each paper are posted on the class web page in the syllabus. You are to read both papers and answer the following study questions about the material in the papers. Your answers do not need to be lengthy. One to several sentences should suffice to answer each question. No answer should be longer than a paragraph.

Paper 1: Hersh, et al. Advancing Biomedical Image Retrieval: Development and Analysis of a Test Collection. Journal of the America Medical Informatics Association. Vol 13 (5), pp 488–496, Sep/Oct 2006.

Study Questions for the Hersh paper:

1. Table 4 displays results for six categories of runs (Automated-Mixed, Automated-Textual, Automated-Visual, Manual-Mixed, Manual-Text, and Manual-Visual).
 - (a) Describe in your own words what these categories mean. For example, what is the difference between *Visual* runs and *Textual* runs? Between *Manual* and *Automatic*? What does *Mixed* refer to?
 - (b) Which of these runs would be considered as *content-based* image retrieval?
2. Table 4 displays the results of evaluation measures, such as MAP, R-Prec, B-Pref etc. Why do you think the authors reported the results of multiple retrieval evaluation measures? Why do you think they made the point that one of the runs with a mid-range MAP result relative to the other runs (OHSUmanvis) outperforms most other runs in precision at 10 and 30 images? In other words, why is that interesting or significant? What might you infer about the performance of that run?

Paper 2: Smeulders et al. Content-Based Image Retrieval at the End of the Early Years. IEEE Transactions on Pattern Analysis and Machine Intelligence, 22(12), pp. 1349–1380, December 2000.

Study Questions for the Smeulders paper:

3. List three examples of features that have been used in content-based image retrieval.
4. What is the “semantic gap”? Give your own example (not one in the paper) of something that illustrates the meaning of the term semantic gap.

5. Why might passport photos be considered a narrower domain with respect to image retrieval than photos of athletes? (Think about what is meant by a narrow domain and what is meant by a broad domain with respect to image retrieval).
6. What is the difference between weak segmentation and strong segmentation of an image? (Describe in your own words. Don't just copy definitions from the paper.)

Turn in your answers as hard copy at the beginning of class on Tuesday March 6, 2007. Make sure your answers are legible.