Special Topics on Information Retrieval (CS 492)

Spring 2010 Syllabus

Instructor:
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Office hours: 9:00 am – 04:00 pm

Lecture sections:
Tuesday and Thursday
CH 145; 03:30 pm-04:45 pm

Class web site:
http://ccc.inaoep.mx/~mmontesg/pmwiki.php?n=Main.InformationRetrieval

Course Description:
This course provides an advanced overview to the task of Information Retrieval and state-of-the art approaches in this field. It mainly focuses on presenting some recent approaches for improving the retrieval performance such as sense-based indexing and information fusion. Then, in the final part, it introduces some important subtasks and applications, such as geographic information retrieval, multilingual retrieval, and spoken document retrieval. This course is intended for students that already have some background on information retrieval.

Reference material:
- Christopher D. Manning, Prabhakar Raghavan and Hinrich Schütze. *Introduction to Information Retrieval*. Cambridge University Press. 2008.
  (available at http://www-csli.stanford.edu/~hinrich/information-retrieval-book.html).
- R. Baeza-Yates and B. Ribeiro-Neto. *Modern Information Retrieval*. Addison-Wesley, Wokingham, UK, 1999.

Topics:
- *Introduction to information retrieval*   (aprox. 3 sessions)
    1. Definition of the task
    2. Vector space model
    3. Performance evaluation
- *Semantic information retrieval*   (aprox. 5 sessions)
    1. IR using word senses
    2. Approaches for word sense disambiguation
    3. Indexing senses vs. indexing words
    4. Concept-based IR (DOR and TCOR representations)
- *Information fusion*   (aprox. 4 sessions)
    1. IR architectures based on information fusion
    2. Methods for information fusion
    3. Predicting the performance of data fusion
    4. Adaptive information fusion
- *Application tasks*   (aprox. 12 sessions)
    1. Geographic information retrieval
    2. Cross-language information retrieval
    3. Spoken document retrieval

Grading:

Final grades will be based on a combination of homework assignments, in-class attendance and performance, quizzes, and a final project that includes a write up and a presentation. There will be one assignment every two weeks related to the reading and analysis of research papers.

The approximate percentages are as follows:
    45% - Assignments (bi-weekly)
    25% - Final Project
    10% - In-class participation
    20% - Quizzes

Additionally, any one of the following will result on a final grade of F, even if the overall average is greater than 60%.
- Obtaining an average of less than 60% on the assignments and project
- Missing more than five lectures

The nominal percentage-score-to-letter-grade conversion is as follows:
- 90% or higher is an A
- 80-89% is a B
- 70-79% is a C
- 60-69% is a D
- below 60% is an F

Assignments:

Homework assignments will be posted at the webpage, discussed in class, and distributed by email. All assignments will consider the writing of a *brief report about a selected research paper*. Written reports must include the description of the problem, the proposed solution and achieved results, and some ideas for work improvement.

Projects:

Projects will be related to the *extension of the work presented in one of the selected papers*. Projects will be proposed by students and validated by the instructor.

Late assignments:

All assignments up to two days late will receive up to 70% percent of full credit, and more than three days late will receive no credit. All class assignments are due at the beginning of the class period. The final project report/presentation will NOT be accepted after the due date.

Standards of Conduct and Academic Dishonesty:

Any form of academic dishonesty such as cheating, plagiarism, or the deliberate misrepresentation of fact will be dealt with severely. Students are free to discuss assignments, however, the work you turn in should be solely your own. Academic dishonesty will result in a failing course grade for those involved, and disciplinary actions by the University. Each student is responsible for the correctness of his or her own behavior; ignorance is not an excuse. If you are in doubt about something, ask me about it.