Multimedia information management

Academic Year: (2019 / 2020)   **Review date: 17-05-2019**

Department assigned to the subject:

Coordinating teacher: PELAEZ MORENO, CARMEN

Type: Electives ECTS Credits : 6.0

Year : 1 Semester :

OBJECTIVES

- Descriptive knowledge about the information overload problem, the differences between information and contents and the flows of content.
- Skills to use indexing techniques in text, audio, speech, image and video.
- Skills to model Information Retrieval and Filtering techniques.

DESCRIPTION OF CONTENTS: PROGRAMME

The modern information overload problem caused by the availability of enormous amounts of information through internet makes it necessary to design systems that allow us to find the information we search and filter or personalize the information according to our needs. For that matter it is fundamental to be able to automatically index not only textual contents but also audio (music, speech, etc.), image or video, using methods based on the content or even collaborative tagging as the one taking place in social networks. Examples of these multimedia management systems are Google search (and all its variants as Google Image, Google Goggles, etc.), recommender systems and user profilers like those available in Amazon, etc.

Topic 1. Introduction to text processing for information retrieval
Topic 2. Feature extraction techniques for speech, audio, image and video indexing
Topic 3. Modeling of information retrieval tasks
Topic 4. Recommender systems, user profiling and content filtering

LEARNING ACTIVITIES AND METHODOLOGY

The following learning activities and methodologies are combined:

- Theory classes
- Guided lab assignments
- Research papers' preseentations
- Final project

Teachers are available during 2 hours per week for office hours.

ASSESSMENT SYSTEM

1st call:

Individual Research papers presentation (30%)
Individual Research work (40%)
Comprehension test (30%)

Convocatoria extraordinaria:

Individual Research papers presentation (30%)
Individual Research work (40%)
Comprehension test (30%)

% end-of-term-examination: 0

% of continuous assessment (assigments, laboratory, practicals…): 100

BASIC BIBLIOGRAPHY

- C. D. Manning, P. Raghavan and H. Schültze Introduction to Information Retrieval, MIT press, 2008

- G. G. Chowdury Introduction to Modern Information Retrieval, 3nd ed., Neal-Schuman Publishers, 2010

- M. Lew Principles of Visual Information Retrieval, Springer, 2001

- Pamela Forner, Henning Mu¿ller, Roberto Paredes Information Access Evaluation: multilinguality, multimodality and visualization, Springer, 2013

- R. Baeza-Yates and B. Ribeiro-Neto Modern Information Retrieval, 2nd ed., Addison-Wesley, 2011

ADDITIONAL BIBLIOGRAPHY

- A. Hanjalic Content-based Analysis of Digital Video, Kluwer Academic Publishers, 2004

- Anand Rajaraman, Jeffrey D. Ullman Mining of Massive Datasets, Cambridge, 2014

- Bing Liu Web Data Mining: exploring hyperlinks, contents and usage data, Springer, 2011

- C. D. Manning and H. Schu¿tze Foundations of statistical natural language processing, MIT Press, 1999

- C. J. van Rijsbergen The Geometry of Information Retrieval, Cambridge University Press, 2004

- Claudio Carpineto, Giovanni Romano Concept Data Analysis: theory and applications, Willey, 2004

- Daniel Jurafsky, James H. Martin Speech and Language Processing, 2nd Edition, Prentice Hall, 2008