LIS 7610, Information Retrieval Systems

Catalog Description

7610 Information Retrieval Systems (3) Topics include commercially available retrieval systems, text content analysis, query processing models and current research problems.

This course introduces students to principles of organizing and providing access to information using automated information storage and retrieval systems; retrieval system models, index language selection, data structures, user interfaces and evaluation for text and multimedia applications.

General Course Objectives

To appreciate the capabilities and limitations of information retrieval systems

To understand the design and implementation of retrieval systems for text and other media

To evaluate the performance of an information retrieval system

To identify current research problems in information retrieval

Topics Covered

Structure of IR systems
   Information search process; IR system black box; central problem in IR; ranked retrieval, vector space model, probabilistic model

Evidence from content, metadata, behavior
   IR systems built based on the content of information, metadata of information, and the user’s behavior of using information

Interaction design
   Information seeking behavior, interface design for query formulation, selection and examination of search results, human-computer interface design principles
Evaluation
Relevance, system-centered studies, user-centered studies, evaluation criteria, test collection design, evaluation measures, automated evaluation using reusable test collections, user study

Web search
Web crawling, Web indexing, PageRank algorithm, Internet users, deep Web, semantic Web

Clustering, Classification, Filtering
Cluster hypothesis, text clustering, clustering methods, cluster visualization, text classification, information filtering, machine learning techniques

Scanned documents, speech, music, images, video
Indexing and retrieving images of documents, document image analysis; indexing and searching speech, music, images and video

Cross-language Information Retrieval (CLIR)
Free text cross-language information retrieval, translingual retrieval architecture, query-language CLIR, document-language CLIR, dictionary-based query translation, structured queries, translation resources, document selection and examination interface