Information Retrieval and Interaction

Title of the Module
Information Retrieval and Interaction

Level
Master Degree

Location
Copenhagen University, Royal School of Library and Information Science, Copenhagen

Term and Year
Autumn, Year 2013

ECTS credits
7½ ECTS

Instructors
Christina Lioma (kursusansvarlig DIKU, http://www.diku.dk/Ansatte/?id=424829&vis=medarbejder)
Mikkel R. Jakobsen (DIKU, http://www.diku.dk/Ansatte/?id=147590&vis=medarbejder)
Birger Larsen (kursusansvarlig IVA, http://www.iva.dk/blar)

Content
The course objective is to offer an advanced introduction into information retrieval and interaction. The goal is to understand and model how people search for, access and use information, in order to design and evaluate: (1) reliable retrieval algorithms; and (2) user interfaces that support the information seeking process. Through realistic and sound projects, the course aims to stimulate and prepare students for their MSc thesis work. The course will focus on these main questions:

- How can we design efficient retrieval systems?
- How can we study users’ interaction with retrieval systems, and use it to evaluate and improve system usability?

Content in detail:
Architecture of an IR system
- Basic building blocks
- Crawling, filtering and storing information
- Ranking with indexes

Information ranking models
- Probabilistic & machine learning models
- Complex queries and combing evidence
- Domain-specific ranking
- Evaluation and optimisation

User behaviour and interaction
- Models of information seeking
- Search user interfaces & query specification
Objective
Having completed the module, the student must:

Knowledge
- Identify and explain the basic architecture of retrieval systems
- Identify and explain the basic models and techniques of collecting, storing and ranking information
- Identify and explain the basic models of the user information seeking process
- Identify and explain the benefits and drawbacks of different search interface techniques
- Identify and explain different criteria for information retrieval and interaction evaluation

Skills
Students should be able to transfer the above knowledge to real-world tasks by:
- Designing appropriate strategies for crawling, storing and ranking information
- Appraising user information seeking models and selecting between search interface strategies
- Planning and carrying out appropriate evaluations

Competences
- Ability to explain the basic information retrieval and interaction principles to both laymen and specialists
- Ability to use standard procedures and practices when designing or implementing information retrieval and interaction solutions
- Ability to present evaluation analyses and results in a proper format of a written report such that a technically qualified person can follow

Given a working retrieval system, students should be able to:
- Diagnose problems in its main information processing and user interaction functions, and
- Design and calibrate appropriate solutions

Forms of tuition
The course will use a combination of lectures, lab sessions, class discussions and student presentations. Where possible, relevant guest lecturers will be involved. Students are expected to come to lectures and lab sessions prepared and to be active in class, as well as show initiative in their assignments.

Literature
The literature consists of seminal research and review articles from central journals and selected papers from peer-reviewed conferences, textbooks and research reports. This is supplemented with practical experience gained through lab sessions. The amount of literature will correspond to approximately 800 pages.

Sample literature

Language
English

Examination
All elective modules are assessed according to the 7-step grading scale with internal co-examiner
Examination form is: Set written paper in form of a portfolio

Re-exam
Set written paper in form of a home assignment (5-days)

Marking criteria
The assessment is based on an evaluation of the degree to which the examinee’s performance fulfils the objectives of the module. Marks are thus based on the assessment criteria

The module is assessed according to the 7-point grading scale.
Mangler stadig lidt flere bullits
The mark 12 is given to:
For an excellent performance displaying a high level of command of all aspects of the relevant material, with no or only a few minor weaknesses
• The student is very certain in his/her analyses and reflections with respect to discussing and applying theories, concepts, methods, and processes involved in information retrieval and interaction.

The mark 7 is given to:
For a good performance displaying good command of the relevant material but also some weaknesses
• The student shows some certainty in his/her analyses and reflections with respect to discussing and applying theories, concepts, methods, and processes involved in information retrieval and interaction.

The mark 02:
For a performance meeting only the minimum requirements for acceptance
• The student shows basic capability in his/her analyses and reflections with respect to discussing and applying theories, concepts, methods and processes involved in information retrieval and interaction.