

# Autumn School for Information Retrieval and Information Foraging (ASIRF 2017)

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## Abstract

The Autumn School for Information Retrieval and Information Foraging (ASIRF) was held October 1–6, 2017 in Wadern, Germany. The school provided students with a review of topics in information retrieval and information behavior through lectures, student presentations, and a student project. ASIRF attracted thirty-one participants, from Asia, Europe, and North and South America.

## 1 Introduction

The Autumn School for Information Retrieval and Information Foraging (ASIRF) took place October 1–6, 2017 at *Schloss Dagstuhl—Leibniz Center for Informatics (Leibniz-Zentrum für Informatik)* in Wadern, Germany. The school provided students with a review of topics in information retrieval and information behavior. ASIRF also provided attendees with an opportunity to meet other students and professors working in these areas. The school was attended by twenty-four students and seven lecturers, pictured in Figure 1. Attendees represented thirteen countries from Asia, Europe, and North and South America.

## 2 Program

The school was made up of three types of learning activities: lectures, student presentations, and a student project. The types of activities were rotated throughout the week in order to support students' learning styles and encourage them to apply their new knowledge of information retrieval and information behavior. In addition to the learning activities, ASIRF included daily social activities to encourage all participants to get to know each other. The learning and social activities are described in the following subsections, including a description of each lecture.

### 2.1 Lectures

Seven leading scholars gave twelve lectures at ASIRF, providing students with an overview of topics in information retrieval and information behavior. A typical day at the school included three lectures. A brief summary of the lectures is provided in the following subsections.



Figure 1: A photograph of ASIRF participants at the entrance of the *Schloss Dagstuhl* chapel.

**Foundations of Weighting, Ranking and Information Retrieval Evaluation**  
by Thomas Mandl (University Hildesheim) &  
**Advanced Information Retrieval Models and Weighting**  
by Ingo Frommholz (University of Bedfordshire)

For students with a background in information retrieval, Ingo gave an advanced lecture on commonly-used information retrieval models. He discussed, for example, the advantages and disadvantages of various term frequency–inverse document frequency weighting functions. For students with little or no prior knowledge of information retrieval, Thomas gave a crash course on indexing, scoring and weighting, and evaluation.

**Interactive Information Retrieval**  
by Haiming Liu (University of Bedfordshire)

Haiming’s lecture introduced user-centric design and evaluation of information retrieval systems by reviewing work at the intersection of human–computer interaction and information retrieval. Next, she provided an overview of multimedia information retrieval, including a review of content-based visual information retrieval.

**Conducting Interactive Information Retrieval Experiments**  
by David Elsweiler (University Regensburg)

David contributed a review of methods for conducting studies of users’ interactions with information retrieval systems. The advantages and disadvantages of system- and human-

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focused methods were discussed. Factors to consider when designing studies using human-focused methods were outlined, including, but not limited to, when to conduct between-group or within-group designs, recruitment of participants, and how to address different types of biases that can emerge throughout the research cycle.

### **Information Extraction** by **Ralph Schenkel (University Trier)**

Ralph's lecture provided an overview of semantic search. This included a detailed description of the components of semantic search, such as named-entity recognition and disambiguation. Ralph walked students through the creation of knowledge graphs and knowledge-based search systems.

### **Information Behavior** by **Katriina Byström (Oslo Metropolitan University)**

Katriina's lecture built on earlier lectures by Haiming and David with a thorough introduction to information behavior, including a review of the literature on information needs and information seeking. She compared and contrasted models of information behavior which inform interactive information retrieval. Katriina also discussed of how the notion of information need relates to decision making, browsing, and relevance.

### **Information Retrieval Efficiency** by **Ralph Schenkel (University Trier)**

In his second lecture, Ralph introduced the technical details necessary for efficient indexing and querying of documents. The main considerations covered by Ralph included approaches that provide fast user query processing, addressing scalability with MapReduce, and how these can be combined for distributed query processing.

### **Information Foraging Theory** by **Haiming Liu (University of Bedfordshire)**

Haiming's second lecture presented an introduction to information foraging and its impact on information seeking behaviors. Information scent, the patch model, and information diet were all discussed. These concepts were then applied in an in-class activity where pairs of students conducted a search task to learn about their own information foraging behaviors.

### **Modeling Interactive Information Retrieval** by **Norbert Fuhr (University of Duisburg–Essen)**

The lecture given by Norbert covered interactive probability ranking principle (IPRP) and methods for modelling user interactions while searching. A general introduction to IPRP was provided, as well as specific applications of Markov models in the frame of IPRP.

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## 2.2 Student Presentations

Students were given an opportunity to present their work on the fifth day of the school. The presentations were on many topics, including collaborative information seeking, machine learning for information retrieval, multimedia information retrieval, searching as learning, and social media analysis. Following each student's presentation, a question and answer session was held to support the students' ongoing work.

## 2.3 Student Project

On the second, third, and fourth days of ASIRF, students worked in groups to design and evaluate a ranking algorithm for mobile phone apps. Student groups presented their work at the end of the fourth day of the school, and benefited from lecturers' comments on their designs.

## 2.4 Social Activities

The school offered many opportunities for attendees to interact. Participants spent breakfasts, lunches, dinners and coffee breaks together. Each night included further opportunities for students and lecturers to continue discussing their research interests and other topics in the wine cellar or during matches of table tennis. A field trip to Trier, the oldest city in Germany, and a tour of a local vineyard and winery were organized for attendees to experience German culture.

## 3 Summary

The Autumn School for Information Retrieval and Information Foraging was held October 1–6, 2017 at *Schloss Dagstuhl* in Wadern, Germany. The school attracted thirty-one participants in total, from thirteen countries and four continents, including twenty-four students and seven lecturers. The school provided students with a variety of learning activities to develop their knowledge of system- and user-centric information retrieval, including lectures, student presentations, and student projects.

## Acknowledgements

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