Chapter 1 : CiteSeerX â€" Citation Query Information Retrieval Interaction

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Designing good user interfaces to information retrieval systems is a complex activity. The design space is large and evaluation methodologies that go beyond the classical precision and recall figures are not well established. In this paper we present an evaluation of an intelligent interface that co More specifically, we describe an experiment that evaluates: The interpretation of results leads to guidelines for the design of user interfaces to information retrieval systems and to some observations on the evaluation issue. A cognitive model of document use during a research project. It reports on Part 1 of a longitudinal study of decision making on document use by academics during an actual research project. Part 2 followed up the same users on how the use behavior. Document selection is the endpoint of a bibliographic search. From there, the selected document may proceed selected documents were actually used in subsequent to the next stage: The participants are 25 self-selected faculty and Figure 1 depicts three major decision points of document graduate students in Agricultural Economics. After a ref- use along the stages of document seeking and use during erence interview, the researcher conducted a search of DIALOG databases and prepared a printout. The users a research project. The solid box indicates the process in selected documents from this printout; they were asked which the decision about a retrieved document is made. Their The dotted box depicts the decisions about reading and verbal reports were recorded and analyzed from a utilitytheoretic perspective. The following model of the decision-making in the selection process emerged: This research aims at the decision making processes across these different stages in a real life provide the information for judging documents on 11 cri-situation. This model ac- Interaction with Texts: This analysis suggests that some assumptions underlying the standard model of information retrieval are inappropriate, and we suggest alternative assumptions and discu This analysis suggests that some assumptions underlying the standard model of information retrieval are inappropriate, and we suggest alternative assumptions and discuss their implications for information retrieval system design. It is proposed that information retrieval is most properly considered as information-seeking behavior, that the central process of information retrieval is user interaction with text, and that the user is the central component of the information retrieval system. Possible ways to incorporate this view in the design of information retrieval systems are discussed. Smeaton - Natural Language Information Retrieval , " The imact of NLP on information retrieval tasks has largely been one of promise rather than substance. While there are exceptions to this as some of the chapters in the present volume demonstrate, for the most part NLP and information retrieval have only recently started to dovetail together. We introduce the respective roles of NLP and IR and then we summarise our early experiments on using syntactic analysis to derive term dependencies and structured representations of term-term relationships. We then re-thought the role that NLP could have for IR tasks and decided to concentrate our efforts onto using NLP resources rather than NLP tools in information retrieval and our more recent experiments in this area in which we use WordNet are summarised. Finally we present our conclusions and the status of our work. Show Context Citation Context All of these highlighted inadequacies with the role that information retrieval plays in information seeking show that the IR operation which we concentrate on is just one part of a larger process a Differences and similarities in information seeking: This study examined the success and information seeking behaviors of seventh-grade science students and graduate students in information science in using Yahooligans! Regardless of success Powered by:

Chapter 2 : Information Retrieval Resources

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History[edit] This term human—computer information retrieval was coined by Gary Marchionini in a series of lectures delivered between and Marchionini notes the impact of the World Wide Web and the sudden increase in information literacy — changes that were only embryonic in the late s. These include exploratory search , in which users generally combine querying and browsing strategies to foster learning and investigation; information retrieval in context i. This systems are typically evaluated based on their mean average precision over a set of benchmark queries from organizations like the Text Retrieval Conference TREC. Because of its emphasis in using human intelligence in the information retrieval process, HCIR requires different evaluation models — one that combines evaluation of the IR and HCI components of the system. A key area of research in HCIR involves evaluation of these systems. Early work on interactive information retrieval, such as Juergen Koenemann and Nicholas J. Systems should help users to bridge the gap between data or information in the very narrow, granular sense of these terms and knowledge processed data or information that provides the context necessary to inform the next iteration of an information seeking process. That is, good libraries provide both the information a patron needs as well as a partner in the learning process — the information professional — to navigate that information, make sense of it, preserve it, and turn it into knowledge which in turn creates new, more informed information needs. Techniques[edit] The techniques associated with HCIR emphasize representations of information that use human intelligence to lead the user to relevant results. These techniques also strive to allow users to explore and digest the dataset without penalty, i. Many search engines have features that incorporate HCIR techniques. Spelling suggestions and automatic query reformulation provide mechanisms for suggesting potential search paths that can lead the user to relevant results. Faceted search enables users to navigate information hierarchically , going from a category to its sub-categories, but choosing the order in which the categories are presented. This contrasts with traditional taxonomies in which the hierarchy of categories is fixed and unchanging. Faceted navigation , like taxonomic navigation, guides users by showing them available categories or facets , but does not require them to browse through a hierarchy that may not precisely suit their needs or way of thinking. For example, various web applications employ AJAX to automatically complete query terms and suggest popular searches. Another common example of lookahead is the way in which search engines annotate results with summary information about those results, including both static information e. Relevance feedback allows users to guide an IR system by indicating whether particular results are more or less relevant. Summarization here is intended to encompass any means of aggregating or compressing the query results into a more human-consumable form. Faceted search, described above, is one such form of summarization. Another is clustering , which analyzes a set of documents by grouping similar or co-occurring documents or terms. Clustering allows the results to be partitioned into groups of related documents. For example, a search for "java" might return clusters for Java programming language , Java island , or Java coffee. Visual representation of data is also considered a key aspect of HCIR. The representation of summarization or analytics may be displayed as tables, charts, or summaries of aggregated data. Other kinds of information visualization that allow users access to summary views of search results include tag clouds and treemapping.

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Chapter 3 : Information Retrieval Interaction - Download link

Reviewer: Harold Borko According to the author, "the aims of the book are to establish a unifying scientific approach to IR [Information Retrieval]â€"a synthesis based on the concept of IR interaction and the cognitive viewpoint; to present research and de more.

Workshop proceedings are now available. Details on the workshop location are now available. As our lives become ever more digital, we face the difficult task of navigating the complex information spaces we create. The fields of Human-Computer Interaction HCI and Information Retrieval IR have both developed innovative techniques to address this challenge, but their insights have to date often failed to cross disciplinary borders. In this one-day workshop we hope to explore the advances each domain can bring to the other. Following the success of the HCIR workshop , co-hosted by MIT and Endeca, we are once again bringing together academics, industrial researchers, and practitioners for a discussion of this important topic. This year the workshop is focused on the design, implementation, and evaluation of search interfaces. We are particularly interested in interfaces that support complex and exploratory search tasks. Susan Dumais , Microsoft Research Researchers and practitioners are invited to present interfaces including mockups, prototypes, and other early-stage designs , research results from user studies of interfaces, and system demonstrations related to the intersection of Human Computer Interaction HCI and Information Retrieval IR. The intent of the workshop is not archival publication, but rather to provide a forum to build community and to stimulate discussion, new insight, and experimentation on search interface design. Several people have asked whether there are funds available to defray travel or accomodation expenses. Unfortunately, our funds only allow us to cover the costs of the workshop itself. It is our hope that the growing success of this workshop will attract additional funding in future years. If your company or organization is interested in sponsoring travel scholarships, please let us know as soon as possible. Possible topics for presentation at the workshop include, but are not limited to: Novel interaction techniques for information retrieval. Modeling and evaluation of interactive information retrieval. Exploratory search and information discovery. Information visualization and visual analytics. Applications of HCI techniques to information retrieval needs in specific domains. Ethnography and user studies relevant to information retrieval and access. Scale and efficiency considerations for interactive information retrieval systems. Relevance feedback and active learning approaches for information retrieval. Demonstrations of systems and prototypes are particularly welcome.

Chapter 4 : Information Retrieval - Quantum Interaction

Human-computer information retrieval (HCIR) is the study and engineering of information retrieval techniques that bring human intelligence into the search process. It combines the fields of human-computer interaction (HCI) and information retrieval (IR) and creates systems that improve search by taking into account the human context, or through a multi-step search process that provides the.

Latent Dirichlet allocation Feature-based retrieval models view documents as vectors of values of feature functions or just features and seek the best way to combine these features into a single relevance score, typically by learning to rank methods. Feature functions are arbitrary functions of document and query, and as such can easily incorporate almost any other retrieval model as just another feature. This fact is usually represented in vector space models by the orthogonality assumption of term vectors or in probabilistic models by an independency assumption for term variables. Models with immanent term interdependencies allow a representation of interdependencies between terms. However the degree of the interdependency between two terms is defined by the model itself. It is usually directly or indirectly derived e. Models with transcendent term interdependencies allow a representation of interdependencies between terms, but they do not allege how the interdependency between two terms is defined. They rely an external source for the degree of interdependency between two terms. For example, a human or sophisticated algorithms. Performance and correctness measures[edit] Main article: In general, measurement considers a collection of documents to be searched and a search query. Traditional evaluation metrics, designed for Boolean retrieval [clarification needed] or top-k retrieval, include precision and recall. All measures assume a ground truth notion of relevancy: In practice, queries may be ill-posed and there may be different shades of relevancy. Timeline[edit] Before the s Joseph Marie Jacquard invents the Jacquard loom , the first machine to use punched cards to control a sequence of operations. Herman Hollerith invents an electro-mechanical data tabulator using punch cards as a machine readable medium. The US military confronted problems of indexing and retrieval of wartime scientific research documents captured from Germans. Hans Peter Luhn research engineer at IBM since began work on a mechanized punch card-based system for searching chemical compounds. Growing concern in the US for a "science gap" with the USSR motivated, encouraged funding and provided a backdrop for mechanized literature searching systems Allen Kent et al. The term "information retrieval" was coined by Calvin Mooers. Philip Bagley conducted the earliest experiment in computerized document retrieval in a master thesis at MIT. That same year, Kent and colleagues published a paper in American Documentation describing the precision and recall measures as well as detailing a proposed "framework" for evaluating an IR system which included statistical sampling methods for determining the number of relevant documents not retrieved. Hans Peter Luhn published "Auto-encoding of documents for information retrieval. Cleverdon published early findings of the Cranfield studies, developing a model for IR system evaluation. Cranfield Collection of Aeronautics, Cranfield, England, Kent published Information Analysis and Retrieval. Weinberg report "Science, Government and Information" gave a full articulation of the idea of a "crisis of scientific information. Joseph Becker and Robert M. Hayes published text on information retrieval. Becker, Joseph; Hayes, Robert Mayo. Information storage and retrieval: New York, Wiley Project Intrex at MIT. Licklider published Libraries of the Future. Nicholas Jardine and Cornelis J. Three highly influential publications by Salton fully articulated his vector processing framework and term discrimination model: Heavy emphasis on probabilistic models. The CITE system supported free form query input, ranked output and relevance feedback. Belkin , Robert N. Oddy, and Helen M. This was an important concept, though their automated analysis tool proved ultimately disappointing. Salton and Michael J. David Blair and Bill Maron publish: Efforts to develop end-user versions of commercial IR systems. Key papers on and experimental systems for visualization interfaces. Web search engines implementation of many features formerly found only in experimental IR systems. Search engines become the most common and maybe best instantiation of IR models.

Chapter 5 : Information retrieval - Wikipedia

The vector space model was introduced into information retrieval as early as the s to address this problem. In the vector space model, documents are represented as points whose coordinates are determined by the terms contained in the document.

Information on Information Retrieval IR books, courses, conferences and other resources. Classical and web information retrieval systems: Widely used and cited. The authority on index construction and compression. More suitable for undergraduate classes than other books listed here. Experiment and Evaluation in Information Retrieval. A survey of recent research results. Language Modeling for Information Retrieval. Language models are of increasing importance in IR. Readings in Information Retrieval. A collection of classical IR papers. Not a book, but a collection of seminal papers, more up-to-date than Sparck-Jones et al. Information Storage and Retrieval Systems. Am ambitious attempt to develop quantum mechanics as a new foundation for IR. Introduction to Modern Information Retrieval. Intended for students of library and information studies. Text Information Retrieval Systems. Analysis of Hypertext and Semi Structured Data. The best introduction for web-centric IR. The science of Search Engine Rankings. Princeton University Press, More focused on the algorithms of PageRank, but also covers general web IR. Modeling the Internet and the Web: Probabilistic Methods and Algorithms. Recommended for those who have a good foundation in probability theory, but are new to IR. Good books for implementing a search engine.

Chapter 6 : Introduction to Information Retrieval

Information Retrieval Interaction is defined as the interactive communication processes that occur during the retrieval of information by involving all the major participants in information retrieval (IR), i.e. the user, the intermediary, and the IR system.

Chapter 7 : Information Retrieval & Interaction System

of TREC "in its present form is antiphatic to interactive of free-text terms on the one hand, with descriptors from information retrieval" (Robertson, Walker, & Hancock- thesauri (controlled vocabulary terms), on the other hand.

Chapter 8 : Human–computer information retrieval - Wikipedia

From Information Retrieval to Information Interaction Gary Marchionini University of North Carolina at Chapel Hill, School of Information and Library Science.

Chapter 9 : HCIR - Workshop on Human-Computer Interaction and Information Retrieval

Information retrieval is the science of searching for information in a document, searching for documents themselves, and also searching for metadata that describe data, and for databases of texts, images or sounds.