

accessible knowledge and information from the Internet for future generations everywhere, promoting global exchange and international relations”

(<http://netpreserve.org>);

- Miguel Moreira of the RERO (the Library Network of Western Switzerland) on its Digital Library, known as ReroDoc (<http://doc.rero.ch/>).

Each ELAG participant is expected to sign up for one of the workshops and each workshop was allocated some seven hours in six separate parallel sessions in the 3-day programme. The chair of each workshop then reported back to the whole meeting on the relevant deliberations. The topics of the workshops this year were:

ZING (Z39.50 International: Next Generation)

ISO ILL, NISO NCIP or Open URL?

RSS (Really Simple Syndication)

E-books

E-learning and libraries

Electronic Resource Management

RFID and self-service

Metasearch systems versus Google Scholar

Low cost e-journal production

Participants are also expected to produce a ‘progress report’ from their organisations.

There were about 120 attendees, from 20 countries at this very interesting meeting. There was plenty of opportunity to discuss and learn from others about a wide range of relevant developments. On one evening we were led to the bowels of the library building to be shown the plaque indicating where “the Web was born”. We all received an annotated copy of an internal CERN document of March 1989 by Tim Berners-Lee entitled “Information management: a proposal” – his supervisor had written the comment “Vague – but exciting” !!

Full details of presentations are available from <http://cern.ch/elag2005>.

The future of search

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I was asked to present a talk at the UKeIG on the “future of search”. The title allows a speaker such freedom, one could present on many topics; I chose to present on the areas where none of the search engines have managed to solve even basic search problems; namely search of multimedia. Here I present a brief overview of the problems in and solutions to searching music, images, and 3D objects.

Music

Retrieval of music is of growing interest to researchers, with some commercial interest in limited areas. Unlike text search, which has largely focussed on topic-based information seeking tasks, music information retrieval is examining a range of retrieval modes: retrieval by humming (do people hum in tune is a key question here), retrieval by audio example (hear a snippet of a song on the radio and you want to know what it is), retrieval by genre; by timbre and texture by beat boxing or tapping, by mood (i.e. find songs that are upbeat, melancholy, romantic). User collection organization is also a key area of research at the moment. Although much research is taking place, it is clear from looking at current results (much of which is listed at <http://www.music-ir.org>) that research has some way to go in order to provide effective search

across these modes. Manual tagging of music items with metadata is likely to remain the key approach to dealing with music for some time to come.

Images

As with music, commercial search engines have to make do with using metadata or captions if they want to provide image search services. Although intensively researched, progress in retrieval of image content is limited. Image retrieval breaks down into a number of sub-topics, some of which have been more successful than others. Face recognition is one area where reasonable progress has been reported, however even here, face retrieval systems only work if a very large training set can be produced of the faces to be recognised or if faces are only to be recognised when lighting and orientation of a face are carefully controlled.

The main area where progress in image search is likely to be made in the near future is in the devices we use to capture images providing metadata when photos are taken. Already most digital cameras include data (conforming to the EXIF standard) into each image describing amongst other things the date/time a photo was taken, the status of the lens, exposure and aperture. Future cameras are likely to use GPS to tag where the photo was taken. Such information will help in the organisation and search of image collections.

3D objects

The final topic covered in the talk perhaps seemed an odd choice, but there are signs that three dimensional objects are going to become more prominent on the Internet. Already there are search engines, which allow querying for 3D objects based on a series of sketches (see <http://shape.cs.princeton.edu/search.html>). Currently the number and type of objects available for search are limited, however, means of capturing the shape of physical objects is becoming easier and in areas such as cultural heritage such diverse projects as capturing set designs or scanning the shape of statues is taking place. Once sufficient objects have been scanned, search of them will become an important topic.

Conclusion

From this brief overview it is clear that there is a wide range of search applications yet to reach the commercial mainstream. Search has a much richer and more diverse future than perhaps one might have thought.

Non-linearity and Human Information Behaviour

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Introduction

Human Information Behaviour is an area of research that is of particular significance to professionals interested in information skills and key skills instruction. Recent research suggests that patterns of 'literate' information seeking are self-reflective, context bound, pragmatic, flexible, and adaptable. In specific terms, the patterns are also defined as non-linear, dynamic, complex inter-relationships of behaviour, activity, and context. This paper briefly introduces one model from the Non-linear perspective of Human Information Behaviour, and describes some potential implications for library instruction that arise from the application of these principles.

The concept of non-linearity and the non-linear perspective

The focus of non-linear theories in the sciences is on understanding the complex inter-relationship of variables, and mathematically representing, the movement, or transformation, of