DIGITAL LIBRARY FEDERATION

JOHNS HOPKINS UNIVERSITY SHERIDAN LIBRARIES

REPORT TO THE DIGITAL LIBRARY FEDERATION FALL, 2003

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I. Collections, services, and systems

A. Collections

Maryland ArtSource

Based at the Sheridan Libraries, Maryland ArtSource is the collaborative effort of eight cultural and arts organizations in Baltimore dedicated to promoting art information resources that illuminate Maryland art and artists. The site showcases Maryland's artistic and cultural heritage, and features:

- selected art collections
- biographies of Maryland artists
- links to art and photography collections at area colleges and universities, libraries, museums, and historical societies.

Medieval Manuscripts – Le Roman de la Rose

A virtual collection of Medieval manuscripts from four libraries has been created to test ways of presenting manuscripts in digital format. This collection enables scholars to conduct comparative research on different versions of *Le Roman de la Rose*. Designed by librarians, scholars and information technology specialists, the site features:

- Complete transcriptions of three manuscripts and the ability to search the entire text of three manuscripts including searches for word frequency, spelling variations, and rhyming patterns.
- Images of each folio in 6 manuscripts of *Le Roman de la Rose*, a principal Medieval text, from the collections of the Walters Art Museum, the Getty Museum, Oxford University, and the Morgan Library.

- Ability to "page" through the manuscripts folio by folio and access the transcription from the folio image screen.

- Ability to view the same passage in all three manuscripts as a result of a search query, and to view multiple folio images and/or transcriptions on the same screen.

- Ability to search the miniatures of three manuscripts using controlled vocabulary

Lester S. Levy Collection of Sheet Music

The Lester S. Levy Collection of Sheet Music contains 30,000 pieces of music and focuses on popular American music spanning the period 1780 to 1960. Both the sheet music covers and the scores have been digitized. Highlights include:

- Images of the covers and each page of music published before 1923 and in the public domain

- Search capability

- Digital workflow management system is currently under development which is designed to reduce the amount of human labor for large-scale digitization projects.

- Optical Music Recognition (OMR) capability, allowing pages of sheet music to be interpreted by a computer, is also being developed within the framework of the Gamera system. OMR will allow users to play the music on a MIDI synthesizer and will enable the storage of large quantities of music in a database which can then be searched with a music search engine and/or analyzed with automatic musical analysis tools.

Digital Workflow Management Project Overview

Optical Music Recognition Demo
N.B. The Johns Hopkins University Sheridan Libraries and the Library of Congress are sponsoring the 4th annual International Conference on Music Information Retrieval (ISMIR), to be held from Oct. 26 to Oct. 30, in Baltimore, Md.

B. Services

Center for Educational Resources

The Center for Educational Resources (CER) partners with faculty to extend their instructional impact through the integration of digital technologies and innovative teaching strategies. Located in the library the Center's mission aligns with the evolving role of university libraries as they advance from print-based repositories to electronic collaboratories that enable application of digital collections and networked services to new approaches in instructional and scholarly communication. The CER’s popular Technology Fellows Program awards mini-grants to faculty and students projects that enhance pedagogy, facilitate access to course materials, encourage active learning and promote student/teacher collaboration

C. Systems

Digital Hammurabi

Digital Hammurabi is a major, cross-disciplinary effort originating at Johns Hopkins aimed both at making very high resolution, three dimensional models of cuneiform tablets available to every researcher's desktop and at producing an international standard Unicode encoding for cuneiform text. Major goals include:

- Production of a portable, non-contact, user-friendly, very high resolution 3D surface scanner that can scan all facets of an average cuneiform tablet in under a minute while implementing scantime adaptive resolution down to 10 micrometers (i.e., 100 lines per millimeter - at least 4 times finer than currently available resolutions)

- Creation of new computer algorithms to stitch gigabytes of raw data together into coherent, virtual tablets for real-time, multi-resolution rendering, self-shading, and manipulation by researchers over fast Internet2 connections using software of our own design.

CAPM (Comprehensive Access to Print Materials)

CAPM focuses on the evaluation and development of a robotic system that will provide real-time access, through a Web interface, to materials shelved in off-site locations. Also collaborating on the project are faculty from the Departments of Mechanical Engineering and Geography and Environmental Engineering at Johns Hopkins and faculty from the Economics Department at the University of Colorado at Boulder.

Gamera

The Gamera system is a tool for developing document recognition applications, though it is not designed to be a packaged document recognition system. Developing a recognizer for Gamera is designed to be as easy as possible, but still requires a considerable time commitment.

Information Technology Research

The proposed Information Technology Research, funded by the National Science Foundation, will result in a fully automated robotic system to include:

- An on-demand and batch scanning of print materials (CAPM)

- An open-source software framework for document analysis that can be trained and calibrated by Humanities scholars (Gamera).

The resulting system will include an inter-linked mechanism between CAPM and Gamera. To evaluate different techniques for document analysis, including Gamera, we will build a testbed of digital images. Gamera will be designed according to the principles of usability which include effectiveness, efficiency and satisfaction.

Services for a Customizable Authority Linking Environment (SCALE)

Johns Hopkins and Tufts University researchers are collaborating to provide two broad classes of service to National Science Digital Library users:

- automatic linking services that bind key words and phrases to supplementary information; such automatic linking services are already in place in the Perseus Digital Library

- infrastructure to support automatic linking based on authority control of names and terms and on links among different authority lists such as thesauri, glossaries, encyclopedias, subject hierarchies, and object catalogs.

http://nils/lib/tufts.edu/scale/

II. Projects

Projects in progress in 2003:

Peabody Digital Audio Archive Project (PDAAP)

The main goal of the initial phase of the Peabody Digital Audio Archive project is to digitize about one third of music in the Archives of the Peabody Institute, which holds about 10,000 hours of tape recordings of concerts and recitals at Peabody over the past thirty years. Completion of the first phase will ensure scalability and assist in determining the cost and feasibility of digitizing the entire Archive and similar collections. The long-term goal is to digitize the entire collection. All ensemble recordings in the Archives are believed to be in the public domain. Evaluation of repository, e-publishing, and digital preservation technologies (*Web site not available yet).* Systems include:

- Dspace
- Fedora
- DiVA (Uppsala University)
- ETD Software
- e-prints
- WebWare (commercial digital asset management system)
- METIS
- Open Journal System
- OKI-compliant courseware
- LOCKSS

III. Specific Digital Library Challenges

Usability

Ubiquity does not guarantee usability. *"Click here."* Familiar words and common interface elements contribute to the usability of a Web site, but many other aspects are involved. The Sheridan Libraries are engaged in evaluating the "usability" of sites to determine how to create an interface that is efficient, satisfying, and easy to use, to learn, and to remember. Usability evaluation involves selecting some of the various methods designed to glean this information and applying them iteratively, from the early stages of a Web site's development through its active use. Methods include:

- Interviews
- focus groups
- card-sorting tests
- link-naming tests
- scenario-based tests
- cognitive walkthroughs
- heuristic evaluations

Many of these methods invite the library's "target users" to discuss their needs and goals in using the library's Web resources and to participate in sessions in which library staff observe their use of a library Web site. In addition to providing usability evaluation for various library web projects, research is also conducted on digital library usability, with the goal of finding the best methods for evaluating the usability of digital library resources.

IV. Digital library publications, policies, working papers, and other documents

Publications

Droettboom, M., I. Fujinaga, and K. MacMillan. 2002. Optical music interpretation. Submitted for consideration to Statistical, Structural and Syntactic Pattern Recognition Conference.

Droettboom, M., K. MacMillan, I. Fujinaga, G. S. Choudhury, T. DiLauro, M. Patton, and T. Anderson. 2002. Using Gamera for the recognition of cultural heritage materials. Proceedings of the Joint Conference on Digital Libraries, (JCDL). 11-17.

Choudhury, S., B. Hobbs, M. Lorie, and N. Flores. 2002. A Framework for Evaluating Digital Library Services. D-Lib Magazine 8 (7/8).

Suthakorn, J., S. Lee, Y. Zhou, R. Thomas, G.S. Choudhury, and G.S. Chirikjian. A Robotic Library System for an Off-Site Shelving Facility. Proceedings of the 2002 IEEE International Conference on Robotics and Automation (ICRA), Volume 4. 3589-3594.

MacMillan, K., M. Droettboom, I. Fujinaga. 2001 Gamera: A Python-based toolkit for Structured Document Recognition. Submitted to the 10th International Python Conference.

Droettboom, M., I. Fujinaga, K. MacMillan, M. Patton, J. Warner, G. S. Choudhury and T. DiLauro. 2001. Expressive and efficient retrieval of musical data. Proceedings, International Symposium on Music Information Retrieval. 173-8.

MacMillan, K., M. Droettboom and I. Fujinaga. 2001. Gamera: A structured document recognition application development environment. Proceedings, International Symposium on Music Information Retrieval. 15-6.

Choudhury, G. S., T. DiLauro, M. Droettboom, I. Fujinaga, and K. MacMillan. 2001. Strike up the score: Deriving searchable and playable digital formats from sheet music. D-Lib Magazine 7 (2).

Droettboom, M., and I. Fujinaga. 2001. Interpreting the semantics of music notation using an extensible and object-oriented system. Proceedings of the Ninth International Python Conference. 71-85.

Choudhury, S., T. DiLauro, M. Droettboom, I. Fujinaga, B. Harrington and K. MacMillan. 2000. Optical Music Recognition System within a Large-Scale Digitization Project. Proceedings, International Symposium on Music Information Retrieval.

Choudhury, G. S., C. Requardt, I. Fujinaga, T. DiLauro, E. W. Brown, J. W. Warner, and B. Harrington. 2000. Digital workflow management: The Lester S. Levy digitized collection of sheet music. First Monday 5 (6).

Brown, E. and J. Warner. Automated Name Authority Control. Proceedings of the First ACM/IEEE Joint Conference on Digital Libraries (JCDL). 21-22.

DiLauro, T., G.S. Choudhury, M. Patton, J. Warner, and E. Brown (2001). Automated Name Authority Control and Enhanced Searching in the Levy Collection. D-Lib Magazine, 7 (4).

Choudhury, G.S., M. Lorie, E. Fitzpatrick, B. Hobbs, G. Chirikjian, A. Okamura, and N.E. Flores. 2001. Comprehensive Access to Printed Materials (CAPM). Proceedings of the First ACM/IEEE Joint Conference on Digital Libraries (JCDL). 174-75.

Presentations

Teal Anderson, Web/Usability Specialist: An Introduction to Web Accessibility presented at the JHU Disability Coordinators' Spring Meeting, March 2003.

International Perspectives on Creating a Usability Methodology for Academic DLs, panel at the European Conference on Digital Libraries, September 2002.

Usability Testing for Reference Librarians, presented at the American Library Association conference, June 2002.

An Introduction to Usability, presented at the Maryland Library Association - Academic and Research Libraries Division, September 2001.