



Johns Hopkins University Sheridan Libraries

Report to the Digital Library Federation

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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:

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

The National Endowment for the Arts awarded \$20,000 to Maryland ArtSource in 2004 to expand the site's resources on Maryland artists and broaden its reach to include the state's photographic heritage. <http://www.marylandartsource.org/>

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

<http://rose.mse.jhu.edu/>

Lester S. Levy Collection of Sheet Music

The Lester S. Levy Collection of Sheet Music (<http://levysheetmusic.mse.jhu.edu/>) 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.

Optical Music Recognition Demo (<http://www.dkc.jhu.edu/gamera/demo/index.html>)

The Sheridan Libraries are members of the Sheet Music Consortium, which includes the Library of Congress, UCLA, Brown, Indiana, and Duke. The Sheridan Libraries and the Library of Congress sponsored the 4th annual International Conference on Music

Information Retrieval (ISMIR), held October 26 - 30, 2004 in Baltimore, Maryland. Over 150 participants from 21 countries attended. <http://ismir2003.ismir.net/>

B. Services

Services may include user-profiling services, online reference services, services supporting interlibrary loan or the use of electronic reserves. Details below.

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 (<http://www.cer.jhu.edu>) awards mini-grants to faculty and students projects that enhance pedagogy, facilitate access to course materials, encourage active learning and promote student/teacher collaboration.

The CER will present a symposium on November 9, 2004, to mark the completion of a major humanities initiative to develop electronic resources that support critical thinking skills in students of the humanities. The event features 14 projects, funded in part by the Arthur Vining Davis Foundations, that range across the disciplines of art history, archeology, documentary photography, fiction and poetry, film studies, philosophy, "great books," and history. Each project is unique, but shares the theme of developing exciting new digital resources that inform undergraduate study and research in the discipline in question. <http://www.cer.jhu.edu/>

Virtual Library Services for Alumni

Hopkins KnowledgeNET, a Web-based service devoted exclusively to Hopkins alumni, was launched in the spring of 2004. A joint venture of the Sheridan Libraries and the Johns Hopkins Alumni Association, it offers free access to hundreds of journals, newspapers and e-books, and fee-based access to an expanded set of resources, such as the Harvard Business Review, The Economist, and the many other resources. The service also provides toll-free phone, e-mail and fax access to a dedicated KnowledgeNET librarian. Over 100 alumni have already subscribed to the fee-based service since the launch.

C. Systems

Systems may include reports by members on their development, implementation or experience of various applications and software whether developed locally, acquired from a third party. etc. Reports might focus on integrated library systems, application

specific software or software components, applications developed by members for specific functions. Details below.

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.

<http://www.jhu.edu/digitalhammurabi/>

Jonathan Cohen in Johns Hopkins Computer Science department is now the principal investigator for this project.

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.

The first phase of the CAPM Project produced a prototype retrieval robot and an economic analysis of the potential costs and benefits. The economic analysis framework is applicable for assessing general library services. <http://dkc.mse.jhu.edu/CAPM/>

Gamera

Gamera is a system for developing document recognition applications, though it is not itself a document recognition application. Developing a document recognition system with Gamera is designed to be as easy as possible, but still requires a considerable time commitment. <http://dkc.mse.jhu.edu/gamera/index.php3#Introduction>

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 (<http://www.perseus.tufts.edu/>)
- 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.

SCALE Web Site (<http://nils.lib.tufts.edu/scale/>)
http://www.dkc.jhu.edu/scale_project.html

II. Projects and programs

A. Projects

Projects in progress in 2004:

Digital Audio Archive Project (DAAP)

The Sheridan Libraries are collaborating with Indiana University on this project. The main goal of the current project, funded by the Institute For Museum and Library Services (<http://www.imls.gov/>), is to digitize about one-third of the music collection to ensure scalability then determine the cost and the feasibility of digitizing the entire Archive and similar collections. The project will:

- Develop and design workflow management for audio tape ingestion, including finding the best hardware (tape machines) and using appropriate methods required to digitize aging analog audio tapes.
- Evaluate existing metadata formats (MPEG 7 / 21, Dublin Core, MusicBrainz) for recorded music and expand if necessary to create a catalogue.
- Evaluate the potential of using native XML databases along with XSLT/XQuery for searching (remote access, exchange) of metadata.
- Evaluate the feasibility of using open-source software and inexpensive hardware as foundations for search and distribution of terabyte-scale data: IDLE (Inexpensive Digital Library Engine).
- Clarify the copyright issues of the Archive.
- Collect user feedback and assess usability.

http://www.dkc.jhu.edu/pdaap_project.html

Evaluation of repository, e-publishing, and digital preservation technologies

Development and evaluation of technologies supporting repositories and repository interoperability, learning and collaboration, e-publishing, metadata management, and digital preservation. <http://dkc.jhu.edu/projects.html>

National Digital Information Infrastructure and Preservation Program (NDIIPP)

Archive Ingest and Handling Test

This project is testing the best methods and strategies for the long-term preservation of digital collections. Multiple digital "repository systems" are being evaluated to determine how well each performs the process of "ingesting" and sharing a massive collection of over 57,000 digital images, Web pages and other digital records surrounding the September 11, 2001 attacks.

Through the evaluation, a set of policies and processes will be developed for large-scale digital repositories to form the foundation of an open, modular digital library infrastructure that will support the diversity and scale of a broad range of digital content. Other ongoing systems evaluations include:

- Dspace
- Fedora
- DiVA (Uppsala University)
- ETD Software
- e-prints
- WebWare (commercial digital asset management system)
- OKI-compliant courseware
- LOCKSS
- Sakai (via membership in Sakai Educational Partners Program)
- locally developed applications

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.

In 2004, usability testing was employed extensively in the re-design of the Sheridan Libraries' Web site. The site launched in August 2004, and usability testing has been formalized as an on-going evaluation tool. http://www.dkc.jhu.edu/dkc_usability.html

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

- Martino, Jim. 2004. Is Metadata Too Subjective? MELD, the MedBiquitous E-Learning Discourse, an online community. http://meld.medbiq.org/divergent_views/metadata_martino.htm .
- Droettboom, M., I. Fujinaga, and K. MacMillan. 2002. Optical music interpretation. Proceedings of the Statistical, Structural and Syntactic Pattern Recognition Conference, Windsor, Canada. LNCS 2396. 378-86.

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- Choudhury, S., B. Hobbs, M. Lorie, and N. Flores. 2002. A Framework for Evaluating Digital Library Services. D-Lib Magazine 8 (7/8).
<http://www.dlib.org/dlib/july02/choudhury/07choudhury.html>
- 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.
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http://firstmonday.org/issues/issue5_6/choudhury/index.html
- 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). <http://www.dlib.org/dlib/april01/dilauro/04dilauro.html>
- 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

Evaluating the Usability of Digital Libraries through Task-Based Tests." Digilib Conference. Espoo, Finland. September 2003. <http://dkc.mse.jhu.edu/~teal/digilib/>

An Introduction to Web Accessibility presented at the JHU Disability Coordinators' Spring Meeting, March 2003. <http://www.dkc.jhu.edu/%7Eteal/section508/>

International Perspectives on Creating a Usability Methodology for Academic DLs, panel at the European Conference on Digital Libraries, September 2002. <http://www.ucl.ac.uk/annb/DLUsability/ECDLpanel.html>

Usability Testing for Reference Librarians, presented at the American Library Association conference, June 2002. http://www.dkc.jhu.edu/%7Eteal/ala_slides/

An Introduction to Usability, presented at the Maryland Library Association - Academic and Research Libraries Division, September 2001. <http://dkc.mse.jhu.edu/~teal/presentation/>

Sayeed Choudhury, Associate Director for Library Digital Programs

Integration of Digital Library Services through Repositories. Educause Mid-Atlantic Regional Conference. January 2004. <http://tinyurl.com/45p26>