

Summary of Accomplishments for Michael L. Nelson in CY 2003

Research Statement

My research is in the area of digital libraries (DLs), specifically concerning the representation, responsibilities and interfaces between archives (or repositories) and the stored objects themselves. Regarding archives, I continued to serve as the co-editor for the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). Although the protocol itself has been stable since July 2002, ancillary work continues. I have been a co-editor of the Static Repository and Static Repository Gateway specifications, the XML schema for gateway descriptions, and the OAI-Rights effort. Regarding digital objects, I am continuing my research on “buckets”, intelligent mobile archival storage units, with specific attention on applying them to digital preservation.

Positions Held

- Assistant Professor, Old Dominion University, Department of Computer Science, Norfolk Virginia, July 2002 - present
- Consultant, ASRC Aerospace Corp., Greenbelt MD, January 2003 – September 2003

Students

1. Sridhar Adusumilli, MS
2. Aravind Elango, MS
3. Terry Harrison, MS

Classes Taught

1. CS 410, Computer Based Productivity I, Spring 2003, 20 students. Overall rating 5.40/6.0
2. CS 695, Introduction to Digital Libraries, Fall 2003. 6 students. Overall rating 6.0/6.0
3. CS495/595, Peer-to-Peer Information Systems, Fall 2003, 9 students. Overall rating 5.40/6.0

Current Funding

1. Kepler -- A Communal Digital Library, 2002-2004 (Co-PI, with K. Maly (ODU), M. Zubair (ODU), \$700,000, NSF 0205486)

Journal Articles Published

1. Michael L. Nelson, JoAnne Rocker and Terry L. Harrison, OAI and NASA Scientific and Technical Information, *Library Hi-Tech*, 21(2), 2003.

Refereed Conference Papers Published

1. Xiaoming Liu, Kurt Maly, Mohammad Zubair, and Michael L. Nelson, Repository Synchronization in the OAI Framework, *Proceedings of the Third ACM/IEEE Joint Conference on Digital Libraries*, Houston Texas, May 27-31, 2003, pp. 191-198. **(Finalist for the Best Paper Award)**
2. Terry L. Harrison, Michael L. Nelson, and Mohammad Zubair, The Dienst-OAI Gateway, *Proceedings of the Third ACM/IEEE Joint Conference on Digital Libraries*, Houston Texas, May 27-31, 2003, pp. 309-311.
3. Hesham Anan, Kurt Maly, Michael Nelson, Mohammad Zubair, Xiaoming Liu, Jinsong Gao, Jianfeng Tang and Zhao Yang, ARCHON: Building and Learning Environments Through Extended Digital Library Services, *Proceedings of the 5th International Conference on New Educational Environments*, Lucerne Switzerland, May 26-28, 2003.

Other Publications

1. Simeon Warner and Michael L. Nelson, Report on the Metadata Harvesting Workshop at JCDL 2003, *SIGIR Forum* 37(2), Fall 2003.
2. Michael L. Nelson, Report on the Third ACM/IEEE Joint Conference on Digital Libraries (JCDL), *D-Lib Magazine*, 9(7/8), 2003.
3. Terry L. Harrison, Michael L. Nelson, and Mohammad Zubair, The Dienst-OAI Gateway: A Preservation Gateway for a Legacy Protocol, Old Dominion University Computer Science Department Technical Report TR-2003-01, March 2003.
4. Herbert Van de Sompel, Carl Lagoze, Michael L. Nelson, and Simeon Warner, XML Schema for Gateway Descriptions, 2003. Available at: <http://www.openarchives.org/OAI/2.0/guidelines-gateway.htm>
5. Herbert Van de Sompel, Carl Lagoze, Michael L. Nelson, Simeon Warner, Patrick Hochstenbach, and Henry Jerez, Specification for an OAI Static Repository and an OAI Static Repository Gateway, 2003. Available at: <http://www.openarchives.org/OAI/2.0/guidelines-static-repository.htm>

6. Herbert Van de Sompel, Carl Lagoze, Michael L. Nelson, and Simeon Warner, OAI-Rights White Paper, 2003. Available at:
<http://www.openarchives.org/documents/OAIRightsWhitePaper.html>

Invited Presentations & Tutorials

1. “New Digital Library Possibilities Using the OAI-PMH”, First Latin American Workshop on the Production and Diffusion of Electronic Theses, Santiago, Chile (11/3/03) (Invited)
2. “Self-Preserving Digital Objects”, AISTI Mini Conference, Santa Fe New Mexico (9/16/03) (Invited)
3. “Institutional Archives Technology Overview”, FLICC Workshop: Institutional Archives and Repositories in Government (9/12/03) (Invited)
4. “U.S. Government Use of the OAI-PMH”, IndoUS Workshop on Open Digital Libraries and Interoperability, Arlington Virginia (6/24/03) (Invited)
5. “Using OAI-PMH for Resource Exchange”, Metadata Harvesting Workshop at the Third ACM/IEEE Joint Conference on Digital Libraries, Houston Texas (with Terry Harrison) (5/31/03)
6. “Advanced Overview of Version 2.0 of the Open Archives Initiative Protocol for Metadata Harvesting”, Half-day tutorial at the Third ACM/IEEE Joint Conference on Digital Libraries, Houston Texas. (with Herbert Van de Sompel and Simeon Warner) (5/27/03)
7. “U.S. Government Use of the OAI-PMH”, ISTE / NSF Ibero-American Digital Library Joint Project Development Symposium, Campinas, Brazil (03/20/03) (Invited)
8. “Service Providers – Future Perspectives”, Professional Scholarly Publishing Annual Conference, Washington DC (02/05/03) (Invited)

Service

1. Member, Program Committee, Third ACM/IEEE Joint Conference on Digital Libraries (JCDL 2003)
2. Member, Open Archives Initiative Technical Committee
3. Reviewer, International Journal of Digital Libraries
4. Library Representative, Old Dominion University Computer Science Department

Research and Development

1. Design, implementation and evaluation of an $O(n \log n)$ algorithm for detecting similar and duplicate records in the OAI-PMH corpus. Also the design of an OAI-PMH aggregator that re-exports the results of the similarity computations. (Results not yet published).
2. Design, implementation and evaluation of dynamic interface techniques for networks of smart objects. (Results not yet published).
3. Design, editing, evaluation and testing of Version 2.0 of the Open Archives Initiative Protocol for Metadata Harvesting. Co-editor of the protocol specification document, migration instructions and implementation guidelines (www.openarchives.org).
4. Design and implementation of the OAI-PMH based version of the NASA Technical Report Server (NTRS, ntrs.nasa.gov). Provided consultation to other NASA field centers regarding OAI-PMH and NTRS integration.
5. Development and delivery of OAI-PMH data provider source code to the NASA Jet Propulsion Laboratory (JPL) and the NASA Goddard Institute for Space Science (GISS).
6. Design consultation to the Kepler Project (kepler.cs.odu.edu; joint with LANL, UPenn, USGS and ODU).