FINAL REPORT FOR AWARD # 0090153

Edward A Fox ; *VA Polytechnic Inst & St U*
US-Korea Joint Workshop on Digital Libraries: Removing Barriers to International Collaboration on
Research and Education through Digital Libraries

Participant Individuals:
Technician, programmer(s) : Debra K Dudley

Participants' Detail

Partner Organizations:
San Diego Supercomputer Center: In-kind Support; Facilities; Collaborative Research

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1. SDSC hosted the workshop on August 10-11, 2000. They provided many
services and varied types of assistance throughout the course of the
project.

2. Reagan W. Moore helped with preparation of reports and
publications.
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University of Maryland College Park: Collaborative Research

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Ronald L. Larsen of U. Md. served along with Reagan W. Moore (SDSC) as
co-PI in terms of running the workshop and project. He participated in
preparation of reports and publications.
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Chungnam National University: Financial Support; Collaborative Research; Personnel Exchanges

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Chungnam National University helped run the workshop and project on
the Korean side. Sung Hyon Myaeng (shmyaeng@cs.chungnam.ac.kr) has
been the main organizer there, and is co-author on project reports and
publications. He helped host a number of visits to Korea by US
researchers working on this project.

Mann-Ho Lee was on sabbatical at Virginia Tech visiting for 1 year
starting Aug. 14, 2000. He also was part of a delegation discussing a
cooperative exchange program between Virginia Tech and Chungnam
National University, with an MOU signed 2/19/2002 by respective
university presidents.
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Sookmyung Women's University: Financial Support; In-kind Support; Collaborative Research

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Sookmyung Women's University helped run the workshop and project on
the Korean side. Kim, Sung-Hyuk (ksh@sookmyung.ac.kr) has been a key
organizer there, and is co-author on project reports and publications.
He helped host a number of visits to Korea by US researchers working
on this project. He has attended many meetings in the USA over the
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course of the project.

Other collaborators:

1. Several US researchers have visited Korea to help on the project, to promote US-Korea collaboration on digital libraries. Many attended ICADL'2000 in Seoul, Korea over the period Dec. 6-8, 2000. PI Fox also was in Seoul as well as Daejeon on July 12-13, 2003. There are reports on the WWW site (http://fox.cs.vt.edu/UKJWDL/) regarding the two most recent visits. Below are brief notes about those:

1a. Ching-chih Chen, Professor, Graduate School of Library and Information Science, Simmons College, Boston, MA 02115, chen@simmons.edu, visited Daejeon and Seoul over the period Nov. 26 - Dec. 1, 2002. Dr. Chen is a member of PITAC. See her report at http://fox.cs.vt.edu/UKJWDL/later/CCC_Korea_report_120402_rev.pdf

1b. Robert B. Allen, Professor, University of Maryland, rba@glue.umd.edu, visited Korea in October 2002 to speak at the Oct. 14 symposium the National Library of Korea hosted to examine plans for a new National Digital Library of Korea. He gave a second presentation, about NSDL, since Dr. Jane Prey of NSF was at the last minute unable to attend. See his report at http://fox.cs.vt.edu/UKJWDL/later/KoreaRBA.txt

2. Many people attended the Aug. 10-11, 2000 workshop. Details are given on the WWW site, such as the alphabetical list of attendees at http://fox.cs.vt.edu/UKJWDL/later/attendees.pdf

2a. A number received reimbursements from the project funds. They are:
- Robert B. Allen, University of Maryland
- Ching-chih Chen, Simmons College
- Su-Shing Chen, University of Missouri-Columbia
- Gregory Crane, Tufts University
- Lois Delcambre, Oregon Graduate Institute of Science & Technology
- Edward A. Fox, VT
- Michael Gertz, University of California
- Stephen Helmreich, New Mexico State University
- Ulf Hermjakob, University of Southern California
- Ronald L. Larsen, University of Maryland
- Reagan Moore, San Diego Supercomputer Center

2b. The full list ofof attendees (alphabetical) is:
- Robert Allen - University of Maryland - rba@GLUE.UMD.EDU
- Dookwon Baik - Korea University - baik@SWSYS2.KOREA.AC.KR
- Ching-Chih Chen - Simmons College, Boston - chen@SIMMONS.EDU
- Su-Shing Chen - University of Missouri - Columbia - schen@ECN.MISSOURI.EDU
- Jonghoon Chun - Myongji University - jchun@WH.MYONGJI.AC.KR
- Gregory Crane - Tufts University - gcrane@PERSEUS.TUFTS.EDU
- Lois Delcambre - Oregon Graduate Institute - lmd@CSE.OGI.EDU
- Edward Fox - Virginia Tech - fox@VT.EDU
- Michael Gertz - University of California, Davis - gertz@CS.UCDAVIS.EDU
- Stephen Helmreich - New Mexico State University - shelmrei@CRL.NMSU.EDU
- Ulf Hermjakob - USC Information Sciences Institute - ulf@ISI.EDU
- Soon Joo Hyun - Information & Communications University (ICU) - shyun@ICU.AC.KR

- Hyeon Kim - Korea Research & Development Information Center -
hyeon@KORDIC.RE.KR
- Sung-Hyuk Kim - Sookmyung Women's University -
ksh@SOOKMYUNG.AC.KR
- Yongchae Kim - Ministry of Information & Communication -
yongari@MIC.GO.KR
- Ron Larsen - University of Maryland - rlarsen@DEANS.UMD.EDU
- Sang-goo Lee - Seoul National University - sglee@MARS.SNU.AC.KR
- Sang Ho Lee - Soongsil University -
shlee@COMPUTING.SOONGSIL.AC.KR
- Young-Suk Lee - MIT, Lincoln Laboratory - ysl@SST.LL.MIT.EDU
- Karl Lo - University of California, San Diego - klo@UCSD.EDU
- Bruce Miller - University of California, San Diego -
Rbmiller@UCSD.EDU
- Sung Been Moon - Yonsei University - sbmoon@YONSEI.AC.KR
- Reagan Moore - San Diego Supercomputer Center - moore@SDSC.EDU
- Sung Hyon Myaeng - Chungnam National University -
shmyaeng@CS.CHUNGNAM.AC.KR
- Gang-Tak Oh - National Computerization Agency, Seoul -
okt@NCA.OR.KR
- Sam-Gyun Oh - SungKyunKwan University - samgyun@YAHOO.COM,
samoh@YURIM.SKKU.AC.KR
- Hae-Chang Rim - Korea University - rim@NLP.KOREA.AC.KR
- Shalini Urs - University of Mysore - shaliniurs@HOTMAIL.COM
- Lee Zia - National Science Foundation - lzia@NSF.GOV

Activities and findings:

Research and Education Activities:

The main activity of the project was to run the 'US – Korea Joint
Workshop on Digital Libraries', August 10-11, 2000, at the San Diego
Supercomputer Center in San Diego, California. Follow-on efforts
included further discussion facilitated by subsequent visits of US
researchers to Korea, and visits of Korean researchers to USA.
Additional activities included meeting with government officials in
both countries to explore possibilities for funded programs. To
promote the development of more collaborative initiatives, we engaged
in constructing a WWW site (http://fox.cs.vt.edu/UKJWDL), publishing
about the effort, and preparing recommendations.

Findings:

Key recommendations, which are supported by the discussion below,
include:

1. Since researchers in both US and Korea are involved in R&D related
to digital libraries (DLs), there are real and potentially significant
opportunities for collaboration in this area that should be nurtured.

2. Since education has high priority in Korea, and since in the last
years there has been successful US-Korea collaboration regarding such
educational resources as electronic theses and dissertations, an
important opportunity that should be explored is involvement of
Koreans in the initiative led by the US National Science Foundation to
develop the National STEM (Science, Technology, Engineering, and
Mathematics) education Digital Library, NSDL (see NSF 02-054,
http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf02054, and NSF 03-530,
http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf03530, as well as
www.nsdl.org).

3. Since NSF has supported work by US researchers through NSF 02-085
in connection with its Digital Libraries Initiative (DLI, see
http://www.dli2.nsf.gov/), and in Spring 2002 launched a new
International Digital Libraries Collaborative Research and
Applications Testbeds Program Solicitation (NSF 02-085,
http://www.nsf.gov/cgi-bin/getpub?nsf02085), US teams are encouraged
to apply to such programs in concert with partners that may obtain
support from similar programs in Korea.

4. Further focused programs for US-Korea collaboration on DLs should
be developed and explored, especially if related to the following
opportunities:

4a) Work on Korea Culture and Heritage Digital Libraries: has support
in Korea; could provide an opportunity for US citizens (including
students) to access Korean culture and heritage; can benefit from
technologies and experience developed by US researchers; and could
lead to important solutions to problems such as cross cultural, cross
lingual, cross religion, and multidisciplinary interoperability.

4b) Advances in work on ontologies and on the various areas dealing
with human languages (e.g., machine translation, cross-language
information retrieval, text summarization) should allow DLs to support
users in both nations.

4c) Application areas of particular importance, such as health and
medical care, seem particularly amenable to US-Korea collaboration,
especially with regard to special services such as annotation.

4d) A number of important DL problems, such as digital library
architecture (including for managing data, information, and
knowledge), interoperability, and user-centered design and evaluation,
are of particular interest to US-Korea teams that may need new
insights regarding solutions that cross national, linguistic, and
cultural barriers.

Training and Development:

The workshop itself was the major training and development event of
our project. This provided an opportunity for all attendees to explain
their research, through presentations as well as group discussions on
particular topics. Through the WWW site and our various publications,
this teaching has spread to have wider impact.

A secondary type of teaching occurred through the several visits by
people helping with this project aimed to promote collaborative
research, through presentations as well as discussions with government
officials and program directors of funding agencies.

The third type of research and teaching that has been demonstrated in
this project, and which might lead to further sabbatical and other
exchange programs, is illustrated in a new VT-CNU connection. After
the workshop, two Korean researchers interested in digital libraries
came to work with PI Fox during their sabbatical. Further, in Spring
2002 a delegation from Chungnam National University, led by its
President, came to Virginia Tech to sign an MOU for academic
collaboration.

Outreach Activities:

In addition to the workshop and follow-up trips, there has been active
involvement of US researchers who attended the workshop in US-Asia
digital library discussions. In particular, the International
Conference on Asian Digital Libraries series has provided a forum for
researchers from US and Korea to meet and help increase public
understanding. For example, PI Fox has played the following roles:

- Program Co-Chair, ICADL'2002, Dec. 17-20, 2002, Singapore

- Member, Program Committee, ICADL 2001, Dec. 10-12, 2001, Bangalore,
India, 4th Int'l Conf. of Asian Digital Libraries

- Invited keynote presenter, 'Digital Libraries: From Theory to
Applications in Education and Business'. 2000 Asian DL conference,
ICADL'2000, Seoul, Korea, Dec. 6-8, 2000,
http://www.ndltd.org/talks/koreainv.ppt

Journal Publications:

E. Fox, R. Moore, R. Larsen, S. Myaeng, S. Kim, "Toward a Global Digital Library: Generalizing US-Korea Collaboration on Digital Libraries", *D-Lib Magazine http://www.dlib.org/dlib/october02/fox/10fox.html*, vol. 8, (10), p. 1. Published

Book(s) of other one-time publications(s):

Edward A. Fox, Reagan W. Moore, Ronald L. Larsen, Sung Hyon-Myaeng, and Kim Sung-Hyuk, "US-Korea Collaboration on Digital Libraries: An Overview and Generalization for Pacific Rim Collaboration" , bibl. Dec, (2002). *Poster for conference* Published
of Collection: , "5th International Conference on Asian Digital Libraries, ICADL 2002, Singapore"

Edward A. Fox, "Digital Libraries: From Theory to Applications in Education and Business" , bibl. http://www.ndltd.org/talks/koreainv.ppt, (2000). *Invited keynote presentation* Published
of Collection: , "2000 Asian DL conference, ICADL'2000, Seoul, Korea, Dec. 6-8"

Other Specific Products:

Internet Dissemination:

http://fox.cs.vt.edu/UKJWDL

The project home page is http://fox.cs.vt.edu/UKJWDL. An increasing
amount of documentation related to the workshop has been available
online since August 2000, including:

* proposal to US National Science Foundation (NSF) for the workshop;

* agenda and other general information about the meeting;

* presentations given at the meeting (in PowerPoint and other
formats);

* position statements of attendees (in PDF and other formats);

* reports of discussions: by working groups, breakout groups, and
meeting organizers;

* draft of outlines and reports;

* pointer to Oct. 2002 D-Lib Magazine publication derived from this

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project;

* reports from visits to Korea in late 2002 by workshop participants
Robert B. Allen and Ching-chih Chen
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Contributions:

Contributions within Discipline:

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 Korean researchers and government officials are moving forward so that
there will be additional work and support in Korea for the DL field.
The US DL research community is more aware than before of both the
interest in DL activities in Korea, and the quality of a number of
Korean DL research activities. Indeed, there have been various
discussions of collaborative projects, and if funding can be worked
out, further development of a program of collaborative research should
proceed.
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Contributions to Other Disciplines:

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 Many areas relate to computing, especially regarding branches of
science and engineering that deal with human-computer interaction, or
the organization and utilization of data, information, and knowledge.
 Particularly connected are efforts in the library and information
sciences, which are closely related.  All of these fields benefit from
our research and collaboration regarding digital libraries.
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Contributions to Education and Human Resources:

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 We work toward advances in digital libraries, which very often are
supportive of scholarly activities, including all forms of learning.
Thus we broadly support the development of human resources.
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Contributions to Resources for Science and Technology:

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 Over the recent years, Korean agencies have begun to broaden support
for specialized digital libraries, such as of theses and
dissertations, leading gradually to more availability of Korean
research to the USA and other nations, thus enabling advancement
across the board in research and education. Since digital libraries
are a key part of the infrastructure of modern scholarship, all such
efforts, whether for basic or applied research, or for advanced
development, may have highly leveraged benefit.
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Contributions Beyond Science and Engineering:

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 We work to remove barriers to collaboration on research and education
between pairs of nations with very different languages and cultures,
such as the US and Korea. We report on recommendations (to remove such
barriers) that appear promising for these two nations. These
recommendations are presented early in 2003, when peace, economic
development, and cross-cultural understanding are of particular
importance with regard to US relations with the Korean Peninsula – and
when various developments have occurred that finally make feasible
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both further productive collaboration and possible funding by both
governments. We urge action by NSF and others that will make possible
such contributions.
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