Superimposed Information: US-Korea Joint Workshop on Digital Libraries
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As a database researcher, my interests are in how information is structured or modeled. The success of database management technology lies in the ability to exploit the model. As an example, SQL query statements successfully exploit the application schema, expressed in the relational model. David Maier and I are developing the notion of *superimposed information:* information used to support new applications over existing information sources. Superimposed information can supplement, elaborate, annotate, interconnect, and highlight (reference) selected information elements from existing information sources. The key point about superimposed information is that it uses available addressing schemes to reference information elements through the use of what we call *marks*. Each mark remains linked to the underlying information element. The user can click on a mark and see the underlying information element, in context, using an existing application. There are a variety of models that have been proposed for superimposed information. Many of these models, such as XML and RDF, allow optional schemas. For example, a DTD is not required for XML documents but it can be supplied.

We are exploring these ideas in our NSF Digital Libraries 2 project[1] in collaboration with expert physicians and other clinicians at the Oregon Health Sciences University who are engaged in observational work in an hospital intensive care unit. The underlying information sources include: the patient medical record, lab record, monitor readings (from the ICU bed), etc. We observe that clinicians often create *bundles* of information where selected information is pulled together, e.g., on the back of an envelope. We have built SLIMPad, the Superimposed Layer Information Manager scratchPad, where information selections can be organized into bundles and the information selections always stay linked to the underlying information – using marks.

The goal of our work is to develop generic support for superimposed information to provide new, value-added access paths to information. Many other aspects of a digital library, such as providing authority over controlled vocabularies used for indexing, are outside the scope of our work.

Bio

Lois Delcambre is a Professor of Computer Science and Engineering at the Oregon Graduate Institute. She is one of the principal investigators on the NSF Digital Libraries 2 project "Tracking Footprints through a Medical Information Space." She is also project director and principal investigator for the upcoming NSF Digital Government Project "Harvesting Information to Sustain our Forests" where the Oregon Graduate Institute is partnered with the USDA[2] Forest Service. Dr. Delcambre is also co-principal investigator on a DARPA Autonomic Information Assurance Program project. Dr. Delcambre received her PhD in Computer Science from the University of Southwestern Louisiana in 1982, an MS in Mathematical Sciences from Clemson University in 1974, and a BS in Mathematics with a minor in Computer Science from the University of Southwestern Louisiana in 1972. She was a Systems Design and Software Development Manager at the Division of Information Systems Development at Clemson University from 1974 to 1979. She is currently a Pacific Northwest National Laboratories (PNNL) Affiliate Staff Scientist, at PNNL a multi-program laboratory of the United State Department of Energy. She has participated in 34 research grants and written over 70 papers.

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[1] See www.cse.ogi.edu/footprints for more information, including a collection of papers.
[2] USDA is the United States Department of Agriculture. The Forest Service is part of the USDA.