

## PANEL SESSION

### Database Support for Hypertext

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Hypertext is developing as a separate branch of computing but its aims and methods may to some extent be achieved within existing areas of computing science. Hypertext needs features like referential transparency and referential integrity. Obviously these and other desirable facilities are already well developed within database technology. The intention of this panel is to investigate the hypermedium as a very large database management system.

Present hypertext systems concentrate on the human-computer interface and the replication of physical addressing to represent links between one document and another but symbolic addressing is needed to cope with pre-existing forms of citation and for automated authoring of large quantities of text. Hypertext packages which rely on the whole document residing in main memory are very limited in the size of data that they can handle. Where they can page, data volumes are often restricted by authoring difficulties.

Hypertext systems are generally self-contained and cannot be easily integrated with other programs and data or used concurrently by a number of different authors. On hypermedia, they can store multimedia data in physical form but the semantic structure is not captured. There is limited opportunity for mapping and indirection between user views and storage structures: there has to be one fixed view - that of the author, with little scope for the preferences of individual readers. There is no independent level of control that can test or validate the data and track the navigation through documents: the design and construction of maintainable links is a major problem.

The main question is whether, to exploit the full power of hypertext, it is necessary to have some machine model expressing semantic detail of the documents held with a full abstract specification of the data-types involved and a multi-level architecture similar to that of a DBMS. A related question is the kind of model that is most suitable for representing the architecture of documents and multimedia data. Ideally gains in flexibility and information representation resulting from the use of database techniques should not be counterbalanced by a deterioration in the human-computer interface.

Besides being involved in the initial development, implementation and use of hypertext systems, members of the panel have experience in applying database techniques to textbases using E-R and relational models and object-oriented approaches such as Taxis and Postgres.

