
FOREWORD

Multimedia Computing and Museums Technology, Knowledge Representation and Cultural Heritage

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Of the more than sixty papers presented at the Third International Conference on Hypermedia and Interactivity in Museums, those selected for this volume raised particularly profound issues about the implications of multimedia and computing technologies for the representation of knowledge of cultural heritage. Nothing about the proposition that museums should extend their potential audience by digitally 're-presenting' their holdings and the knowledge they possess about them is simple; not technologically, culturally, or intellectually. In this volume the authors reflect in extremely sophisticated, and technically demanding ways on these implications. In the process, I believe, they make fundamental contributions to the future of multimedia computing in museums.

Museum applications of multimedia, as the first group of papers ably demonstrate, must take into account a complex array of issues not presented by traditional display and collections management approaches. Whether in Denmark, Italy, Chile or the United States, the variety of potential museum applications, and the variety of considerations that go into each project, pose fundamentally new issues for museum professionals and require the forging of teams with new types of expertise. In writings on multimedia computing applications in museums, few authors have dealt with these issues as subtly as Signore, Rold, Musalem and Strohecker.

One of the most profound challenges is that we neither understand the audiences we have been serving nor the new audiences we might be reaching, well enough to design good interactive computer based experiences for them. Nor do we understand very well what they can, or will, do with this new technology. The papers in the second section of this volume report on studies of the people we want to reach with computer based multimedia and suggest new ways of studying these audiences better in the future. Andreas Heinecke provides a conceptual framework for evaluation of museum multimedia, while Robert Garfinkle and Vivian Johnson, Jung-Kook Hong and his colleagues, and Angeles Espinosa Yglesias report on different kinds of evaluations they have conducted. Robert Semper returns us to the

question of what we want to know and how best to uncover it in his revisitation of the development of programs at the Exploratorium over a period of years.

If museums continue to exploit these new technologies (and what choice do they have?), they will be fundamentally transformed in their roles in society and their dependencies on other social institutions. The three papers in the section on museums in society begin to hint at how fundamentally these social relations of museums might be altered. Lyn Elliot Sherwood places the museum in the unfamiliar context of a player in formulation of national cultural and economic policies, including trade policy. Howard Besser suggests how the museum might exploit university based distance education to train the personnel that will be required by these new multi-disciplinary multimedia project teams. Selma Thomas and Larry Friendlander explore the way in which the very meaning of museums are being changed by the opportunities presented by interactive multimedia to engage the potential audiences in the design of the exhibit and in the creation of its contents and to deliver cultural heritage in novel ways.

Museum multimedia raises technological issues that are independent of the museum but which are critical to successful exploitation of digital media by cultural institutions. Nowhere is this more obvious at the moment than in the arena of digital imaging where museum requirements and concerns are far beyond those of the commercial and information technology sectors. As the papers by Michael Ester makes clear, the problems don't end with digitization - they begin there. Even if museums don't want to see things that can't be seen by the human eye (as described by Bearman and Spiro) or document three dimensions with the precision necessary to completely reconstruct it (as described by Baribeau and Rioux), they want to document motion and oversize materials, capture with subtleties and integrity not demanded by commercial applications, and press the technology to, or beyond its limits.

When they put multimedia together into deliverable programs, museums are no less exacting. The design considerations introduced in articles by Signore, Garzotto, Liestol and Economou are not unique to museums, but hypermedia designers will immediately understand that it is no accident that such a complex set of questions were raised at a meeting on multimedia computing and museums.

Museum multimedia is not just entertaining, it is designed to be informative. Typically this means the user must be able to query the database and retrieve items that meet a stated need. But querying of images and sounds must be conducted using words and text. How can the user be enabled to best satisfy the search? In a series of important papers five authors address this question. Jan van der Starre opens by defining just what the issues are in retrieving of images using text. Panos Constantopoulos and Martin Doerr propose a model for representing knowledge of cultural heritage. One approach is tested by Samantha Kelly Hastings while another is detailed by Raymond Pepermans. Finally, a variety of highly technical issues are introduced, and many resolved, in the paper by Douglas Tudhope, Carl Taylor & Paul Beynon-Davies. Nowhere in the literature that I know of has such concerted attention been paid to what will be, in the end, the ultimate determinant of how well multimedia knowledge bases work.

The discussion of text as a means of access raises the question of access for whom and what purpose that is addressed by Jane Sledge in the section on standards. A possible standard approach to interpreting questions asked by the public would be one of the most powerful standards based tools ever. Of course, even if it was available we would be bedeviled by the lack of standards identified by Jennifer Trant and be struggling with the best way to represent knowledge in an interchangeable markup as discussed by Richard Light.

In this third biennial conference on hypermedia and interactivity in museums, I was struck by how far the dialog has progressed since our show and tell sessions of 1991. The theoretical and practical issues become more complex as gain greater experience with the genre; rather than discouraging the museum professional however this should simply attract greater attention from others in the information sciences and make the museum use of hypermedia into a research laboratory for the broader society. I hope this volume contributes to the growing body of research literature and serves as a foundation for future work.