



# ICHIM

**TORONTO 24-26 Oct. 2007**

Ontario, Canada

## Final Program and Proceedings

*from an international conference*

### Produced by

*Archives & Museum Informatics*

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### Co-Chairs

David Bearman  
and Jennifer Trant



ICHIM07 is dedicated to the memory of Xavier Perrot.



**ICHIM**



**TORONTO 24-26 Oct. 2007**

Ontario, Canada

**Welcome!**

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# Pre-Conference Tours

## Interactions with Visitors: New Approaches to Museology

*Ontario Science Centre*

9:45 am- 4:00 pm  
Pre-Registration required.  
Transportation and lunch provided.

Kevin von Appen, Ontario Science Centre, Canada

The staff of the Ontario Science Centre invite you to experience with them the excitement of reinventing public programming and museum exhibitions in the 21st century. Engage in active re-imagining of the museum, explore the inventive interactions created by museum staff, and create rapidly prototyped designs of your own. Join us for an action packed, full-day tour and workshop.

The results of this session will be reported during the ICHIM conference sessions, at 2:00 on Wednesday October 24, 2007.

## Toronto Culture Online

*Various Institutions in Toronto*

9:00 am- 4:00 pm  
Pre-Registration required.  
Guided tour and lunch provided.

Brian Porter, Royal Ontario Museum; Ian Rubenzahl, Art Gallery of Ontario; and Jutta Treviranus, Adaptive Technology Resource Centre, University of Toronto, Canada

Explore interactive multimedia programming at the Royal Ontario Museum. Learn about how Collection X is helping to re-invent the Art Gallery of Ontario during its closing for renovation. Consider the ways that technology contributes to accessibility in numerous research projects from the University of Toronto Adaptive Technology Resource Centre.

# Conference Sessions

## Registration

8:00 am- 4:30 pm

Lower Concourse

## Continental Breakfast

8:00 am- 9:00 am

Lower Concourse

## Opening Plenary

*Auditorium BC*

9:00 am-10:30 am

Chair: David Bearman, Archives & Museum Informatics, Canada

Dedication of ICHIM07 to the Memory of Xavier Perrot

Introduction of the Keynote Speaker, Ian Wilson, Librarian and Archivist of Canada

*“To hold infinity in the palm of your hand”*

Ian Wilson, Library and Archives Canada, Canada

By bringing together the people, the collections, the expertise and the professional cultures of libraries, archives and museums, we have responded to an information landscape that is in constant motion. In just fifteen minutes the world produces an amount of data equal to all the information held at the Library of Congress. This landscape creates information expectations that are vastly different from those we have met in the past. Digital technology allows us to reach more audiences and respond to some of these expectations, but it also creates unique access and preservation challenges. More and more we are connecting with new partners, both nationally and internationally, building up our networks and making the best use of technologies – taking on new roles as knowledge institutions. In a Web 2.0 world, how do we carry out these expanded roles, and what are the new models of cooperation among our professional communities? Where are the synergies, and how do we make the best use of them to reach our clients? Setting ambitious goals and mobilizing the expertise and commitment of many partners, we need to open the first-hand evidence of Canada’s diverse experience to ourselves and to the world.

## Coffee Break

10:30 am-11:00 am

Lower Concourse

## Conservation

*Auditorium BC*

11:00 am-12:30 pm

Chair: Margaret Haupt, Art Gallery of Ontario, Canada

*Lascaux, un nouveau point de départ pour une meilleure évaluation des risques (un constat d'état multimédia) / The Lascaux Caves, a new baseline for better risk evaluation (a multimedia condition report)*

Philippe Dubarry, Patrick Jallet, and Françoise Joseph, France

Our project involves the creation of a multimedia database comprising a condition report on the caves at Lascaux. It has been commissioned by the French Ministry of Culture & Communication and DAPA (Direction de l'Architecture et du Patrimoine) as a result of widespread microbiological contamination

which occurred at the beginning of the millennium. This multimedia report is the first in the world to have been extended to an entire cave system, including both rock art and bare walls. First, we will present the methodological limits encountered during the preparation of the condition report. In a second and larger section, we will present our opinions concerning the transmission of the information collected via a computerized database. At the end of the report, we will briefly suggest some future uses of the database

### *Imag(n)ing Shuilu'an*

Harlan Wallach, Northwestern University, USA

This paper describes the Imag(n)ing Shuilu'an project, its goals and its results. The goals of this project were multifold, and were designed to produce a lasting archive of the Shuilu'an temple, train the Xi'an Center for Conservation in imaging techniques, and explore the methods of 3-D capture and application. This project also worked to develop a prototype of a unified annotation and presentation toolset to explore network-based presentation models of the combined deliverable components, and to explore and evaluate the scholarly use and value of the 2-D and 3-D datasets. The datasets developed encompassed very high-resolution documentary photographic textures of each of the interior surfaces, panoramic VR nodes, a 3D scan of one of the interior walls, to-scale floor plans and vertical sections and technical and descriptive metadata about all of the objects, from the large composite textures to each of the individual acquisition photographic captures. A Web based annotation application was developed to allow the Xian team to provide metadata and region-based metadata on the photographic textures. A dimensional metadata tagging system was created in order to develop a unified browse and search interface that sought to preserve the spatial relationships inherent in the actual structure, informing the digitized components in a fashion that would otherwise not be experienced in a network mediated presentation model.

### *Creative Limits: Applying Finite Element Analysis to Assess Static Stress in a Large-Scale Stone Sculpture by Henry Moore*

Angela Geary and Mingzhi Mao, University of the Arts; John P. Harrison, Imperial College London; and Derek Pullen, Tate, United Kingdom

This paper describes some of the solid body modeling methods developed during our initial analytical findings for Henry Moore's sculpture, "Large Arch", executed in fibreglass and travertine, and discusses the interim conclusions and applicability for future work. These methods include the application of advanced technologies capable of modeling stress behaviour and predicting damage to artefacts deemed critical within the field of cultural heritage conservation. Our development and use of Finite Elements with Laser Scanning for mechanical analysis of Sculptural Objects (FELSSO) has shown great promise in assessing hazardous static stress in large stone sculptures. To date, the project has explored the viability of finite element analysis (FEA) used in conjunction with high-resolution data sets obtained via three-dimensional (3D) laser scanning. This technique will allow analytical predictions of the probable effects on large scale stone sculptures relative to anticipated handling and display methods. The mature technologies of 3D laser scanning and FEA are the principal analytical methods that have been applied in the research. The latter is widely used in engineering fields to calculate the structural strength of items such as buildings, cars and aircraft. For the purposes of this study, data capture was accomplished through phase-shift laser scanning, a technology capable of yielding highly accurate results at capture ranges approaching 80 metres. The research also addressed a key issue in determining the necessary density of scan data required for solid body modeling. Those findings ensure that sufficient detail of the surface texture of a sculpture is captured whilst preventing the inclusion of too large a number of elements. As a result, the overall approach is both accurate and economical in its application.



## In-Museum Engagement

*Auditorium A*

11:00 am-12:30 pm

Chair: Kevin Sumption, Powerhouse Museum, Australia,

### *MUSTEL: Framing the Design of Technology-Enhanced Learning Activities for Museum Visitors*

Palmyre Pierroux and Dagny Stuedahl, University of Oslo, Norway; Liam Bannon, University of Limerick, Ireland; Kevin Walker, London Knowledge Lab, United Kingdom; Victor Kaptelinin, Umeå University, Sweden; and Tony Hall, National University of Ireland, Galway, Ireland

In this paper, we present a perspective on museum learning that is relevant to current technology design trends in museums. The framework is emerging from the experiences of the multidisciplinary EU Kaleidoscope MUSTEL team (Museums and Technology Enhanced Learning), which includes researchers with experience in art history, cultural studies, IT development, interaction design, education and learning sciences, and social science. The shared framework is grounded in a Vygotskian sociocultural approach and Leontiev's activity concept, and has been employed in a number of design interventions in museum contexts by MUSTEL members in recent years. The group is currently engaged in integrating their experiences and insights into the design of ICTs for museums. Cases are presented to illustrate how this frame relates to design research on technologies that augment visitors' activities in museums. These cases focus on the integration of ICTs in exhibition design, and on the design and implementation of mobile devices in art museums.

### *CIMAD/EPOCH - A Framework for Developing Customized Multi-channel Cultural Heritage Services*

Franca Garzotto and Paolo Paolini, Politecnico di Milano, Italy; Daniele Manzaroli, Tullio Salmon Cinotti, Luca Roffia, Giuseppe Raffa, Marina Pettinari, and Sara Bartolini, Università di Bologna, Italy; Phillip Mohr, Nick Ryan, and Lukas Sklenar, University of Kent, United Kingdom

The CIMAD project, "Common Infrastructure/Context Influenced Mobile Acquisition and Delivery of cultural heritage data", is presented. CIMAD is a framework concerned with the development of cultural heritage "services" designed and implemented within the EU Network of Excellence EPOCH - Excellence in Processing Open Cultural Heritage. CIMAD aims to address a wide range of context-aware and multi-channel services in the cultural heritage domain, i.e. data acquisition, content delivery, monitoring, and management. The innovative aspect of CIMAD is that it helps the development team in mastering the complexity of building, customizing and integrating site specific cultural heritage services, thus making the different implementation activities more productive and cost-effective.

### *Interaction models and adaptive approaches for a museum guide for families*

Ron Wakkary, Marek Hatala, Karen Tanenbaum, and Kevin Muise, Simon Fraser University - Surrey, Canada; and Leora Kornfeld, Ubiquity Interactive, Canada

In this paper, we analyze the current state of museum guide technologies and applications in order to develop an analytical foundation for our future research in an adaptive museum guide for families. We have focused our analysis on three critical areas of interest in considering group and social interaction in museums: tangibility, the role of tangible user interfaces; interaction, visit types and visit flows; and adaptivity, user modeling approaches.

## Box Lunch: Birds of a Feather

12:30 pm- 2:00 pm

Lower Concourse

Join a group defined by kind of institution or type of job for a conversation over lunch.

## Interaction: OSC Experience

Auditorium A

2:00 pm- 3:00 pm

### *Field Notes from the 'New' Museum - how does the future feel?*

Kevin von Appen, Ontario Science Centre, Canada together with participants in the Tuesday "challenge zone" workshop held at OSC

What happens when visitors become participants? When they move beyond the traditional boundaries of 'audience' to become co-creators of their own experience? How does a museum - and its web presence - change? Join an ad hoc team of professionals who spent a day exploring and prototyping in the new 'challenge zone' areas of the Ontario Science Centre for a lively debate about our possible futures.

## Audience as Author

Auditorium BC

2:00 pm- 3:30 pm

Chair: Susan Chun, Cultural Heritage Consulting, USA

### *Worlds colliding: Participatory storytelling and indigenous culture in building interactive games*

Samuel Mann and Khyla Russell, Otago Polytechnic, New Zealand

The SimPā project aims to convey and strengthen research aspects in regard to Māori culture, tikāka and knowledge using innovative and cutting edge technology. In short, the project aims to provide a means of telling whānau, hapā and Iwi Māori stories in 3D game format. This paper reviews the first stage of the project. The paper discusses learnings from the first stage of the project the creation of the "SimPā toolkit" to enable participatory development (he kohinga o nga mea rauemi). This includes communication and negotiation processes, technical choices and issues surrounding the recreation of narrative histories.

### *Les musées français et leurs publics à l'âge du Web 2.0. Nouveaux usages du multimédia et transformations des rapports entre institutions et usagers / Museums and their audience in the age of Web 2.0. New uses of multimedia and the transformation of users - institutions relationships*

Gaëlle Crenn, University Nancy 2 and Geneviève Vidal, University Paris 13, France

The Web sites of museums offer a rich scene of innovations as the uses of the Internet expand. The eruption of new potentialities and new uses in Web 2.0 contributes to modifying, to a certain extent, the relationship between the museums and their publics. The new configurations for the creation and management of information, in a context of widespread collaboration, upsets the authority of the museum as the exclusive holder and dispenser of knowledge, as well as the author of its contents, while new configurations, enabling collective use, take shape. Will Web 2.0 technologies, which allow the public to contribute contents to the sites of museums, transform the methods of production and reception of the museological contents? We analyse these evolutions through the study of 15 museum Web sites (5 in North America and 10 in France) and assess the current achievements in French museums. The appropriation of these technologies is still nascent in French museums. As the Brooklyn Museum, a pioneer in this field, demonstrates, the association of renewed forms of public participation and of Web 2.0 innovations, may guide future evolutions towards 'museums 2.0'.

*Searching For Our Heritage,*

Ed Krahn and Sarah Charlie, Government of Yukon, Canada

The Searching for Our Heritage project locates artifacts and natural history collections housed in institutions around the world that originated from Yukon. This project helps track and find these collections that were removed from Yukon. Tracking and finding these artifacts brings a lost legacy home to those eager to rediscover a cultural identity that is invaluable to their holistic well-being. Aboriginal artifacts reconnect individuals with their environment, attesting to the meaning of the artifact which then can then be incorporated into the contemporary world.

**Interaction: Darkness visible, walking through walls**

CR3

3:00 pm- 4:00 pm

*Darkness visible, walking through walls: A collaborative, cross platform strategy for encouraging public participation in cultural heritage institutions*

Liss Jeffrey, eCommons/agora; McLuhan global research network; byDesign eLab, Canada

Dr Liss Jeffrey will begin animation of this interactive workshop by drawing lessons from the recent public success of Nuit Blanche ('darkness visible'), and the established popularity of Doors Open Toronto (walking through walls), in order to endorse the value of these collaborative, cross institution cultural events. Following a first hand account of online and offline participant observation, Jeffrey will propose several informatic tactics for leveraging public enthusiasm for these events, starting with an understanding of these one day/night visits as 'threshold crossers.' The cultural heritage informatic challenge then becomes devising multiple routes that will transform the one day/night visit into an invitation for easy future participation in cultural heritage events and institutions. Jeffrey, a McLuhan scholar and co-curator of the "Watching TV" exhibition at the Royal Ontario Museum (1995-6), will further illustrate her arguments with a preview of what she imagines future 'festivals of culture' could look like, given suitable policies, infrastructure, and encouragement for genuine public participation, by sharing two projects in progress at the byDesign eLab and Electronic Commons/Agora Electronique.

**Afternoon Break**

3:30 pm- 4:00 pm

Lower Concourse

**Briefings: National Projects**

Auditorium BC

4:00 pm- 5:30 pm

*AlouetteCanada: Canada's National Open Digitization Initiative*

Brian Bell, AlouetteCanada, Canada

As society shifts increasingly to a digital, Web-based environment, Canadians have felt that it is vital to have a national vision and a comprehensive plan both to present our cultural heritage on-line to our citizens and to the world and to ensure free and enduring access to that heritage. AlouetteCanada (<http://www.alouettecanada.ca/>) was formed to meet this need.

*The National Digital Newspaper Program: Increasing Access to Historical Newspapers through Digital Reformatting*

Barbara Taranto, New York Public Library, USA

Six regional libraries were awarded two-year grants to help develop the initial test bed for the newspaper digital repository. This briefing will discuss some of the access and cultural lessons learned during this first award period; and some of the reasons The New York Public Library is continuing to work whole-heartedly in this area of developing interest.

*Dutch national initiative for quality assessment of digital heritage projects*

Marco de Niet, Digitaal Erfgoed Nederland | Digital Heritage Netherlands, The Netherlands

Commissioned by the Dutch Ministry of Education, Cultural Affairs and Science, the foundation Digital Heritage Netherlands (DEN) operates a quality system which is used for dissemination and assessment of ICT expertise through self-regulation. The quality system is a tool, designed for Dutch cultural heritage institutions, to facilitate the collecting, distribution and evaluation of knowledge about IT policies, IT standards and best practices. This shared knowledge will support the cultural heritage field to build towards a national Dutch Digital Heritage Collection in a professional, future-proof, and public-oriented manner. The quality system of DEN consists of a Registry of ICT standards and a Project Bank to promote best practices. Furthermore, DEN supports heritage institutions by creating digitisation policies, investigates how they are implementing ICT into their daily work, and organises various expert meetings and large-scale conferences about e-culture and innovation. The DEN quality system is also providing the ICT related criteria for the Dutch governmental grant scheme 'Digitising with a policy' (4m Euro in 2007).

**Briefings: Regional Models***Auditorium A*

4:00 pm- 5:30 pm

*Connecting Canadians with their Natural and Cultural Heritage: Parks Canada's Connectivity Project and Proof of Concept Pilot*

Morag Hutcheson and Michael White, Parks Canada, Canada

In early September 2006, Parks Canada conducted a proof of concept pilot to explore and evaluate the use of videoconferencing as a central component of an interactive, hosted multimedia event aimed at connecting urban Canadians with educational content about national parks. Aiming to evaluate and research connectivity programming models for distance public education, Parks Canada's connectivity concept would connect urban Canadian audiences and school classrooms in real-time with expert specialists and conservation partners in remote heritage locations across Canada. Parks Canada's New Media Strategies and Investment team will present an overview of the connectivity project in general with specific focus on the proof of concept pilot, the qualitative evaluation of the pilot via focus testing with representatives of target audiences, including students and teachers, and a summary of the results of market research commissioned to explore the potential opportunities for museums and public education organizations to work together towards developing Canadian content for public and in-school programming connecting Canadians with their natural and cultural heritage.

*Texas Tides: Digital Learning Consortium*

Susan Clarke and Rachel Galan, Stephen F. Austin State University, USA

The TIDES (Teaching, Images and Digital Experiences) Program offers a digital gateway to rich historical, cultural and scientific resources held in Texas and Mexican libraries, museums, archives, historical societies, private collections, state parks and wildlife preserves. These resources (photographs, scanned documents and artifacts, video and more) are accompanied by custom-made, standards-based curriculum material and are freely available to teachers, students, and researchers worldwide. The TIDES Program was developed to make humanities collections of East Texas available digitally and to combine the expertise of cultural heritage professionals with the needs of educators to create a Website with the desired access to TIDES' digital collections. Phase one of the TIDES program highlighted the need for point of view information regarding Spanish and Mexican occupation of Texas, the addition of sound and video components to hold the interest of K-12 students, available lesson plans for expanded subjects and grade levels, digital resources through the 20th century and more teacher enrichment opportunities. The TIDES Program has expanded to include science, bilingual and culture-based resources. Audience-specific access to the TIDES image database is in development.

*Creating the environment for collaboration - Victoria's Cultural Network project*

Elycia Wallis, Museum Victoria, Australia

Cultural organizations, such as museums and galleries, are increasingly utilizing the capacities of broadband to deliver rich media content over the Web, in their venues or via mobile devices. In the project reported here, a high speed broadband network connects six arts agencies in Melbourne, Australia, and this is used to deliver rich media content via a Web site and public access points in venues. The installation of the broadband network has been the catalyst for wider collaboration to be undertaken. This paper describes Victoria's Cultural Network (VCN), an initiative that has seen a number of organizations start to communicate and cooperate in a way that they have not done before.

**Demonstrations***Lower Concourse*

3:30 pm- 5:30 pm

*Access.ca: Social Studies Resources for Canadian Teachers*

Julie Zilber, Simon Fraser University, and James Marsh, Canadian Encyclopedia, Canada

Access.ca is an on-line environment, or "teaching space," that allows teachers across Canada to access authoritative Canadian resources, evaluated, tagged and organized for easy retrieval according to their curricular needs. The "gateway" site provides context and meaning for diverse content by creating interconnections and interrelations. Access.ca demonstrates how a deep understanding of users' thought processes, combined with appropriate metadata standards and an effective metadata system, can expose content providers' resources in a manner that makes them truly accessible and useful. The paper discusses the design and technical decisions made in developing access.ca, and the process through by which the developers arrived at those decisions.

*A novel collaborative website and artworks database management system for artist-run centers*

Farida Cheriet and Thomas Hurtut, Ecole Polytechnique de Montréal, Canada; and Maria Chronopoulos, Atelier Circulaire, Canada

Artist-run centers and artists collective workshops are renowned places for collective management and artistic production. Nevertheless, their means of public visibility (i.e. Internet Web sites) are frequently managed by a few qualified individuals due to their complex fusion of content and layout. A new type of Internet site can be set up in order to allow every artist and coordinator to contribute to the digital on-line content. Personal virtual portfolios and individual galleries may be uploaded for each artist, making it possible to permanently update the visible bank of artworks on-line. In addition, it offers a simple backyard system for personal management of their creative artwork. A graphical user interface enabling the management of temporary exhibitions combined with automatic RSS feeds allows for simple and timely updates. This article presents the proposed methods and graphical user interface, as well as the tools installed on an Internet site and backyard system. This study is currently being conducted with the "Atelier Circulaire", an artist-run centre in Montreal, Canada, which groups approximately 100 etching artists.

*Constructing an Integrated Digital Archive Using Ontology and the User Community*

Akira Baba and Norio Togiya, University of Tokyo, Japan

In conventional digital archive systems, different archives tend to be created if the types or series of materials are different. In this study, an integrated digital archive system has been developed to aggregate all types or series of materials into one archive. An archive is built and operated with a function to visualize a variety of relationships among the aggregated materials through the utilization of ontology as well as a community function that enables the users to feed back various information about the materials.

### *3D-Acquisition and Multi-Spectral Readings for Documentation of Polychrome Ceramics of the Antiquities Collection of the Kunsthistorisches Museum Wien*

Paul Kammerer and Ernestine Zolda, Vienna University of Technology, Austria; Hubert Mara, PIN - University of Florence, Italy; Elisabeth Trinkl, Austrian Academy of Sciences, Austria

Motivated by archaeological requirements, we are developing an automated system using 3D-acquisition based on structured light for documentation of ancient ceramics. Furthermore we are developing a system for art-historic analysis of medieval paintings using multi-spectral readings of color pigments. In the past both systems have been developed and tested independently at various archaeological excavation sites in Austria, Turkey Israel and Peru for ceramics and on paintings from the Belvedere collection in Austria (Project Cassandra). The presented work was conducted within a project for a new volume of the Corpus Vasorum Antiquorum (CVA). Therefore we show results for the traditional publication based on 3D-models by automatically estimated drawings, which is generally a horizontal cross-section (profile-line) and arbitrary cross-sections e.g. for handles. Additionally we show the unwrapped paintings and views rendered for printed documentation with the registered multi-spectral readings. This enables experts to study visible and invisible aspects of the colored surfaces and can be used for the public in a virtual show-case for ceramics not shown in the exhibition due to limited space for displays. Furthermore we show that the proposed - combined - system is conservative, because it is contact-free, radiation-free and can be applied in an efficient way, by acquisition of up to ten ceramics a day within the museum's storage. All work has been done with respect to the London-Charter to ensure the intellectual integrity, reliability, transparency, documentation, standards, sustainability and accessibility of the information gathered by 3D-acquisition.

### *Artistic Work Life-Cycle Archiving*

Nicolas Esposito, CNRS - Heudiasyc, France

Gathering knowledge about artistic works and creators is generally not very hard (i.e. databases about cinema or music). But, it is harder to learn about the life-cycle of these artistic works (i.e. how a film is made). Then, we can think about a database about the life-cycles of artistic works with project management features. This paper presents a framework (Life-Cycle Description Framework) which contains a method to archive the life-cycles of artistic works and a tool to reuse them. It allows experts to build documentation, to build database entries, and to write project templates. And it allows Web surfers to get this documentation, to retrieve the database entries, and to launch projects. The method includes an evaluation step to validate the project templates with the help of some creators. Thus, the Web surfers do not rely only on the quality of the expert work.

## **University of Toronto Reception**

*Wednesday October 24, 2007*

*Great Hall, Hart House*

6:00 pm - 8:00 pm

The Faculty of Information Studies at the University of Toronto is pleased to sponsor a reception in the Great Hall, Hart House. Join us for hors d'oeuvres in one of the university's great spaces.





**Registration**8:00 am - 5:00 pm  
Lower Concourse**Breakfast hors d'oeuvres**8:00 am - 9:30 am  
Lower Concourse**Demonstrations***Lower Concourse*

8:00 am - 9:30 am

*Creating 3D Virtual Exhibitions*

Otmar Moritsch, Technisches Museum Wien, Austria; Sandra Murg and Christian Derler, Joanneum Research, Austria

Digital content in cultural heritage institutions has become more or less a standard nowadays and is used in various areas like web-pages, media stations at exhibitions, archives, libraries or similar institutions. Three-dimensional presentations of exhibitions, however, are rare and usually not systematically structured due to a distinct lack of didactic and usability strategies. There is as yet no author/curator-friendly editor for developing such exhibitions. To solve these problems, a prototype of an authoring tool called "media.editor" was created at the Vienna Technical Museum together with Joanneum Research. Through a graphical user interface, even users with basic computer skills are able to develop complex exhibition spaces easily. The most common formats of arbitrary digital objects like texts, pictures, sounds, movies and animations can be placed on maps that correspond to virtual rooms. Visitor interactions and guided tours can thus be modelled easily. This tool is now being used at the Technical Museum to create a 3D exhibition space of 100 virtual rooms which will then serve as a digital extension of the permanent exhibition "medien.welten".

*Integrating Data Management and Panoramic Images for an Effective Representation of Cultural Heritage Information*

Elisa Bertino, Purdue University, USA; and Stefano Valtolina, University of Milano, Italy

The effective presentation of cultural heritage (CH) information requires the application of sophisticated techniques from different areas; namely, human computer interaction (HCI) and knowledge management. CH is no longer perceived as just a set of isolated objects, stored in museums or collections, without any links to the specific historical and social contexts of reference. Rather, objects have to be connected to additional information concerning those reference contexts. Since such information evolves over time, based on the research carried out by archaeologists, historical experts, and sociologists, the knowledge base needs to be updated to reflect new discoveries. Moreover, information should be presented at different levels of detail and should support an exploratory approach to information discovery by users. This paper presents a system addressing such requirements. The system uses 360 panoramic images to disseminate CH information retrieved from an open knowledge network, defined as a set of interrelated knowledge sources. In particular the paper explores the integration of panoramic images with ontologies in the context of an application in the area of archaeology (specifically, the Etruscan civilization). The paper also discusses the relevant technical issues for the design of the panoramic image interactive system. Those issues concern on one hand the possible organizations for the domain knowledge and on the other hand the architecture of the system and its interaction patterns. Such interactions are crucial in order to facilitate the development of applications that are easily customizable for users and are characterized by a high level of interactivity.

### *Accessing information through a 3D interactive environment*

Marcello Carrozzino and Laura Pecchioli, IMT Institute for Advanced Studies, Italy; Heinz Leitner, Hochschule für Bildende Künste Dresden; and Fawzi Mohamed, Humboldt Universität, Germany

We present a new method to access geo-referenced information through the interactive navigation of a synthetic 3D model. A novel aspect of our approach is the use of Gaussian functions to define the zones of the 3D space to which the information is connected. The relevance of information is defined as the overlap of the view zone, which is the portion of the 3D space currently viewed, with the information zone. This allows an intuitive interface where information is retrieved by just looking around and provided in relevance order. A desired development is the possibility to acquire, process and analyse geographic information without needing to install proprietary GIS software, or having deep GIS knowledge, in order to provide accessibility to a larger audience. This is achieved by making the software work with commonly available hardware and through the Internet without any special requirements. We also show a first attempt to use this method as an interactive smart guide.

### *Content Based Image Identification on Cultural Databases*

Eduardo Valle and Sylvie Phillipp-Foliguet, ETIS - Equipes Traitement des Images et du Signal; and Matthieu Cord, LIP6 UMPC, France

Cultural institutions are often asked to perform the identification of images in newspapers, theses and even postcards, where the references are too summary, missing or incorrect - in those cases, the visual data is the only reliable evidence for the identification. Image identification is challenging, because of the transformations the query image may have suffered: which include cropping, rotations, scale changes, etc. In this work we describe an automatic, content-based system for image identification based on local descriptors. The indexing scheme we have developed allows the use of those descriptors without the long processing times normally associated with them.

### *Hide&SEEK Cultural Knowledge*

Thierry Giles, Concordia University, Canada / Bauhaus Universität, Germany; and Michael Marianek, University of Wisconsin Milwaukee, USA

Hide&SEEK is a project that developed a street game experience as an opportunity to evoke cultural knowledge transfer. The concept of sharing place-based knowledge is guided by a story, where Hosts and Guests (the players in the game) exchange culture via web enabled mobile devices in physical place. The personalized adventure route is the Host's responsibility to publish and send to a specific Guest. The Guest then has the opportunity to explore an unknown place through an unraveling of a series of questions or clues, leading them through a particular spatial experience. The social experience of sharing cultural knowledge is the motivation behind playing the game. Together the participants' efforts build a network of memorable cultural artifacts that wait to be discovered again in the future.

### *The Gates of Paradise Interactive Kiosk*

Brian Jones and Tiffany O'Quinn, Georgia Institute of Technology; and Julia Forbes, High Museum of Art, USA

The exhibition "The Gates of Paradise: Lorenzo Ghiberti's Renaissance Masterpiece" was organized by the High Museum of Art in collaboration with the Opera di Santa Maria del Fiore and the Opificio delle Pietre Dure in Florence, Italy. It will travel to the Art Institute of Chicago and The Metropolitan Museum of Art. Three of the ten panels and four decorative frame elements from the doors were chosen for the core exhibit, but those three panels were only part of the story depicted in the doors. In order to round out the exhibit and provide an opportunity for visitors to appreciate the entire work of art and the stories depicted in intricate detail on all of the panels, the Museums turned to technology. The Gates of Paradise Interactive was developed to tell the stories in each of the panels, highlight Ghiberti's technique, and provide an opportunity to explore the intricate detail in the panels.



## Briefings: Learning Models

CR3

9:30 am-10:30 am

### *HyperImage: Image-Oriented e-Science Networks*

Martin Warnke and Sabine Helmers, University of Lüneburg; and Heinz-Guenter Kuper, Humboldt-Universität zu Berlin, Germany

Images are an important source of scientific knowledge in many disciplines. The HyperImage project is concerned with the currently unsolved technical problem of establishing links between image details. Our goal is to develop a Web-based workspace that will enable scientists in any image-oriented discipline to create simple and precise links between images and image details, in a fashion similar to that which until now has been the privilege of text. The HyperImage editor permits scientists to mark details of pictures and create links between images and image details of any scale. It is programmed as a platform independent Java application and is open source (GNU Lesser General Public Licence). Any work in progress can be stored within the Hyper-Image system by an author or group of authors, or it can be exported as XML for further usage outside the HyperImage system. Currently we are testing our software prototype with our HyperImage partners from the faculties of Art History and Biology.

### *New Technologies for Learning in Museums: An Interdisciplinary Research Project*

Carmen Zahn, Eva Reussner, and Stephan Schwan, Knowledge Media Research Center, Germany

The research project "Learning in the museum: the role of digital media" examines the learning potentials of digital media in science and technology museum exhibitions. The overarching research theme takes two developments into account: first, the incorporation of recent trends to collocate digital media and objects in museum exhibitions, and second, the increasingly important role attributed to museums as places of life-long learning. These two strands and the possibilities to combine them are examined in an effort to enhance our understanding of learning opportunities in museum exhibitions. In doing so, the research takes into account psychological models of learning, the complex nature of museum exhibitions as information environments, the various presentational modes that are used in exhibition designs as well as the possible contributions of digital media.

## Professional Forum: Cultural Heritage Informatics Education

Auditorium A

9:30 am-11:00 am

Chair: Brian Cantwell Smith, University of Toronto, Canada

*A facilitated discussion of cultural heritage informatics education needs will follow two brief presentations about newly developed programs.*

### *Towards Hybridism in Curricula-based Cultural Heritage Information Management Education*

Mary Edsall Choquette, The Catholic University of America, USA

As the lines of distinction among systems of information management in cultural heritage institutions meld and integrate, so must the professional preparation of archivists, curators, librarians and other keepers of cultural phenomenological documentation and information. This white paper investigates the change in the vision and mission, as well as the physical and administrative infrastructure of cultural heritage institutions, and how this change is mandating a new understanding of what is needed in emerging cultural heritage information management professionals. A look at how one academic program in library and information science at a university is addressing this need through research into and the subsequent creation of a program emphasis on Cultural Heritage Information Management Education (CHIME) is presented in this paper.

### *Teaching Digital Curation: A Functional Approach*

Peter Botticelli, Jana Bradley and Bruce Fulton, University of Arizona, USA

The University of Arizona School of Information Resources and Library Science, the Arizona State Library, Archives and Public Records, and the University of Arizona Office of Continuing Education are collaborating to develop and administer a new post-baccalaureate certificate program (DigIn) that introduces students to the theoretical knowledge, conceptual frameworks and practical skills required to create, maintain and curate collections of digital information. DigIn is a graduate college-approved study program consisting of six newly developed graduate-level courses to be delivered online. The certificate serves as an entry point for students who are considering pursuing master's degrees in archives or library science and who also have an interest in technology and digital curation. For those already holding or concurrently pursuing a master's or doctoral degree in library and information science, it serves as a post-master's certificate of specialty or an area of concentration. Finally, the certificate offers current practitioners a practical way to update and enhance their skills for existing employment or in contemplation of new opportunities. Curriculum development is grounded in a functional approach designed to integrate the practices of librarians, archivists, records managers and technologists within a framework of disciplinary knowledge and the work of interrelated communities of practice. The coursework balances subject knowledge and practical hands-on skills relevant to digital curation and ensures that students acquire an understanding of the professions while demonstrating comfort and proficiency with technology and the ability to continue to develop their technical skills upon completion of the program.

## Professional Forum: Multi-Linguality

*Auditorium BC*

9:30 am-11:00 am

Chair: Nicole Vallières, Director, Knowledge and Collection Management, McCord Museum, Canada

*A facilitated discussion of multilingual access needs and how to satisfy them will follow the presentation of a case study.*

### *Multilingual needs of cultural heritage website visitors: A case study of Tate Online*

Jennifer Marlow and Paul Clough, University of Sheffield, and Katie Dance, Tate, United Kingdom

As the Internet extends its global reach, language can remain a barrier preventing people from being able to fully explore material of interest. Tate Online, the Web site for Britain's Tate art galleries, serves as a good case study for exploring the issue of meeting international site visitors' multilingual needs. The site contains a great deal of material that is of international interest; however, much of this is currently accessible only in English. The present study used a variety of methods to gather a set of requirements and recommendations for providing enhanced multilingual content on Tate Online. These included a competitor analysis, on-line survey of 457 Tate Online visitors, log file analysis, machine translation resource evaluation, and basic user test. Findings from this preliminary study provided information about users' main activities on Tate Online. They indicate that many individuals would appreciate having more content available in their own language, either due to necessity or out of preference. However, the best means of providing this content depends on a variety of factors, including the pragmatic consideration of resources available for translation. Insights gathered here can also apply to other cultural heritage organizations looking to expand the amount of multilingual material on their own Web sites. The means by which this is accomplished may involve striking a balance between that which fulfills site user needs and that which is feasible for the organisation to implement.

## Technology Futures

*Auditorium BC*

11:00 am-12:30 pm

Chair: Harald Kraemer, University of Berne, Switzerland

### *Enhancing the Role of Cultural Heritage Institutions through New Media: Transformational Agendas and Projects*

Kati Geber, Services Canada, and David Bearman, Archives & Museum Informatics, Canada

Museums are responding to the challenges of adapting to an ever-changing environment in order to remain relevant to their visitors, communities, and stakeholders. New and emerging technology opportunities can support practices to adapt to this new environment. This paper presents a framework for transformation and a range of innovation scenarios offered by enabling technologies. The paper addresses opportunities based on technologies that are expected to be widely used within the next decade. It explores obstacles lying in the way of greater access to global cultural heritage and how these can be overcome. This paper is designed to be useful to decision-makers at memory institutions responsible for planning their direction in a rapidly changing technological environment and to serve as basis for discussion of business transformations with their staff.

*Discussion to Follow.*

## Buffet Lunch

12:30 pm- 2:00 pm

Lower Concourse

## Reaching Young People

*Auditorium A*

2:00 pm- 3:30 pm

Chair: Anne-Marie Millner, Canadian Heritage Information Network (CHIN), Canada

### *Archiving and Analyzing Children's Culture: Problems and Outcomes of an Innovative Project*

Paul Scheibelhofer and Alexander Pollak, Central European University, Austria

The paper presents outcomes of a recently finished project analyzing short films produced by children at Vienna's ZOOM Children's Museum. Both the process of production as well as the content of the films are analyzed. The possibilities and problems arising from such a project become visible in the analysis. Although complex and contradictory processes characterize the museum's project, its outcome, the films, are shown to be a valuable medium for documenting children's world-views and the communication strategies they apply to convey them.

### *Producing Interactive Digital Media-based Exhibitions to Engage Students with Cultural Heritage: Brighton Fishing Museum, A Case Study*

David Arnold, Michael Danks, Richard Griffiths, and Karina Rodriguez-Echavarria, University of Brighton, United Kingdom

This paper describes the processes and outcomes from the production of an interactive exhibition devised for the Brighton Fishing Museum by post-graduate students, offering the opportunity to understand not only the museum environment and collection but also its purpose in the community as a place of and for learning. The final outcome is a sophisticated cocktail of user generated multimedia content in symbiotic relationship with the pre-existing live exhibition of artefacts housed in the museum. The conclusions drawn highlight the importance and value of activity- and game-based learning. It demonstrates the power of media production in its creation and final implementation as a learning tool within a museum environment, as well as its ability to engage young audiences with Cultural Heritage.

## Social Impact Indicators

Auditorium BC

2:00 pm- 3:30 pm

Chair: Kathy Jones, Harvard University, USA

### *Modeling ICT deployment at heritage sites: a mechanism for impact assessment*

Jaime Kaminski, Jim McLoughlin, and Babak Sodagar, University of Brighton, United Kingdom

This paper forwards a dynamic holistic ICT investment appraisal and deployment model. This model can be used by heritage sites and museums to both guide ICT investments and provide a framework for impact evaluation. The model considers what factors are likely to influence impacts and outcomes associated with the deployment of information technology at museums and heritage sites. More importantly it considers what issues heritage professionals need to consider when making investments in ICT.

### *Physical Spaces and Virtual Visitors: The Methodologies of a Comprehensive IMLS-Sponsored Study of Users and Uses of Museums*

José-Marie Griffiths and Donald King, University of North Carolina, USA

Research on on-line users, their information needs and the providers and provision of information resources have primarily focused on specific user population segments or the use of specific on-line resources. The Institute of Museum and Library Services (IMLS) has commissioned a team at the University of North Carolina at Chapel Hill School of Information and Library Science and the University of Pittsburgh's University Center for Social and Urban Research to conduct a comprehensive study to evaluate the on-line universe and its participants, and the relationships between physical spaces, such as museums, their visitors and physical and virtual visits — on-line users and uses. This paper focuses on how the research team developed a conceptual model to understand the complexity of the task, and then from that model developed various evaluation and analysis methods, including several survey clusters. The author will share the structure and many of the questions from the actual survey instruments used, as well as the ways in which the team analyzed the collected data to produce insightful and helpful results and recommendations.

## Afternoon Break

3:30 pm- 4:00 pm

Lower Concourse

## Design Methods

Auditorium BC

4:00 pm- 5:30 pm

Chair: Selma Thomas, Watertown Productions, USA

### *Visitors' contributions as cultural heritage: designing for participation*

Liam Bannon, Luigina Ciolfi, and Mikael Fernström, University of Limerick, Ireland

In this paper we discuss our approach to designing two public exhibitions, where our goal has been that of facilitating and supporting visitors' own contributions to the exhibits. The approach behind our work sees the role of technology that is supporting people's experiences of heritage as moving away from delivery of information, and towards enabling visitors to create the content of the exhibit. This approach is aimed at encouraging active reflection, discussion and appropriation, in the tradition of human-centred interaction design. In the paper we present two installations, "Re-Tracing the Past" and the "Shannon Portal". The former was aimed at supporting visitors' experiences of a museum collection; the latter had the goal of encouraging visitors and travelers to share their experiences of Ireland. We then discuss the impact of this design strategy, and analyse the role of visitors' contributions to each exhibit, and the particular interactions between participants, the content they produced and other people's contributions that took place around the two exhibits.

## *Simplicity, slowness and good old stories as strategies and perspectives of design in hypermedia and media*

Harald Kraemer, University of Berne, Switzerland

How can we catch the attention of the user? How can we decelerate the dynamic of the user attitudes? How can we simplify the complexity of the information? To rise to these challenges we need strategies that can best be described with the words 'deceleration', 'simplicity' and 'narration'. Dramaturgy in a film is the correct application of pacing, of rapid pulse beats and then to pause for a moment. Applied to the design of hypermedia applications this means to weave "moments of contemplation" into the narrative flow in order to create a poly-perspectival dramaturgy. To transfer the strategy of storytelling of a film into the "liquid architecture" of hypermedia means to understand the principle of simultaneity in asynchronicity and how the principle of "Festina Lente" (Hurry slowly) will influence the design of hypermedia applications. The author will explain by analyzing several CD ROM masterpieces how the symbiosis of content, navigation and design can create a "cognitive design" and how voyeurism, ludic contents, artefacts or interactive narrators help to capture the visitor's "feeling of solidarity" by empathy – visualized in a sensitive and inspiring dramaturgy.

## Real World/Virtual Worlds

*Auditorium A*

4:00 pm- 5:30 pm

Chair: Ian Rubenzahl, Art Gallery of Ontario, Toronto

### *The Hand Dance: A Didactic Performance Platform*

Elvira Todaro, Massimo Bergamasco, Haakon Faste and Otniel Portillo Rodriguez, PERCRO - Scuola Superiore Sant'Anna, Italy

Multimodal interfaces provide the opportunity for the real-time capture and recognition of body-based gestural information. This paper presents an overview of "The Hand Dance", a multimodal installation/performance forming a didactic platform with applications in education, live dance performance, cultural heritage preservation, and movement therapy. In particular, the technologies described outline the potential for a new type of educational environment that reaches beyond limitations of the student-teacher relationship or multimedia alternatives such as the video-course.

### *Life 1.5: Creating A Task Based Reward Structure In Second Life To Encourage And Direct User Created Content*

Lars Wieneke and David Arnold, University of Brighton, United Kingdom; Jürgen Nützel, 4FriendsOnly.com Internet Technologies Aktiengesellschaft, Germany

Tools for end-user oriented content creation and aggregation, like wikis, blogs, forums and recently multi-user-virtual-environments like Second Life, are becoming more and more popular for museum use. Therefore an understanding of the conditions and limitations for their successful and sustainable application becomes increasingly relevant. In this paper we will discuss an organizational model and technical setup that tries to balance the demands of institutional stake-holders in the museum for quality control and agenda setting, while encouraging at the same time more end-users to participate. To this end, our setup interweaves interaction across multiple platforms – terminals in the museum, Web sites and the Second Life environment – in order to create an engaging and rewarding experience for the visitor.

## Conference Reception

MaRS Atrium

5:30 pm - 7:00 pm

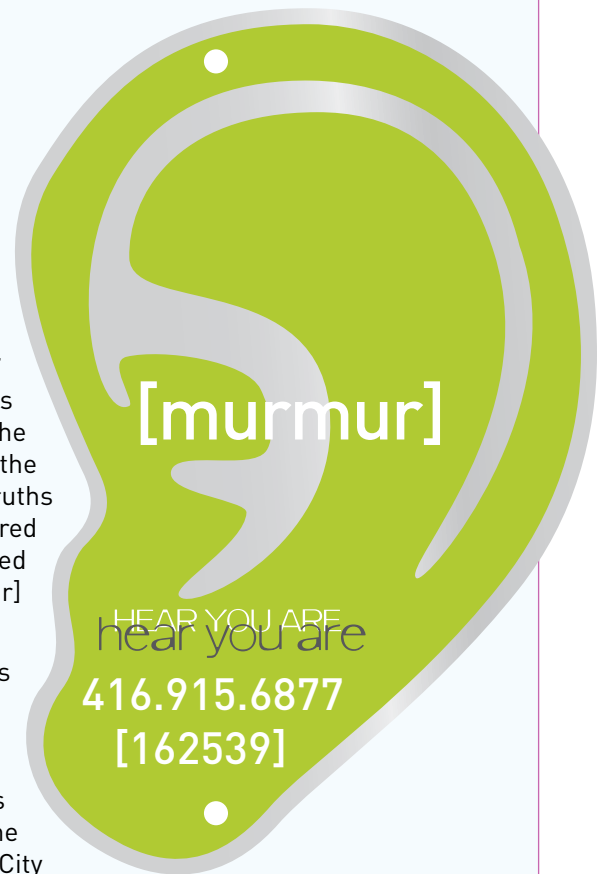
### *[murmur]: Locative narrative*

Gabe Sawhney, Canada

[murmur] is a locative audio documentary project that collects and distributes people's stories about specific places. During their daily routines, pedestrians walk past sites which are marked with a sign indicating the presence of one or more stories. By using their mobile phone to dial the telephone number on the sign, the listener can hear others' stories of that place, in that place – the details come alive as the listener walks through, around, and into the narrative. The stories are as personal as the relationship people have with the spaces they inhabit. Secret histories unearthed, private truths unveiled and tales as diverse as the city itself are discovered and shared. All members of the community are encouraged to participate and contribute, so that the "voice" of [murmur] reflects the diversity of the neighbourhood.

[murmur] was first launched in July 2003, in Toronto's Kensington Market neighbourhood. Since then, it has expanded to six other communities in Toronto, as well as neighbourhoods in Vancouver, Montreal, Calgary, San Jose (California), Edinburgh (UK), and Dublin (Ireland). Supporters include the City of Toronto, the Toronto Arts Council, the Ontario Arts Council, the Canada Council for the Arts, the City of Vancouver, the Canadian Film Centre, Canadian Heritage, New Media Scotland, the Esmee Fairbairn Foundation, the Heritage Lottery Fund (UK), the Scottish Arts Council, the Bealtaine Festival, Age & Opportunity, Dublin Docklands Development Authority, and The Arts Council / An Chomhairle Ealaíon.

[murmur]'s objectives are: to provide a platform for local residents to share their stories with each other; to increase civic pride and participation through an increased knowledge and understanding of communities' places; to increase awareness and (thus) preservation of built heritage; to increase communication between communities, especially those separated by clear ethnic, geographic and/or language boundaries; to make these stories available as widely as mobile phones and the Internet will allow, and to help foster a greater appreciation for the depth and diversity of the life of cities.



## Toronto's Neighbourhoods: Dinners on the Town

7:00 pm onwards

*Experience one of Toronto's many neighbourhoods while joining a group for dinner. Choose your cuisine; volunteers will conduct a groups formed at the reception.*

**Registration**

8:00 am- 3:00 pm

Lower Concourse

**Breakfast hors d'oeuvres**

Lower Concourse

8:00 am-9:30 am

**Demonstrations***Lower Concourse*

8:00 am-9:30 am

*iAKS: A Proposal for a Web 2.0 Archaeological Knowledge Management System*

Ethan Watrall and Jeff Siarto, Michigan State University, USA

View a prototype Web 2.0 Archaeological Knowledge Management System entitled iAKS. Developed using the forthcoming Adobe AIR (Adobe Integrated Runtime), iAKS is intended to be a flexible data entry, data archiving, and data visualization system appropriate for use in a wide variety of archaeological settings. Ultimately iAKS is designed to leverage the strengths of Adobe AIR and other Web service technologies in order to bypass many of the problems associated with traditional field archaeological data management and data interoperability.

*i-muse™ - Interactive Museum*

Davide Orlando, i-muse, Como; and Guido Panini, Luca Fadigata, Paolo Sinigaglia, and Samantha Vanossi, Startup Accelerator of the Politecnico di Milano, Italy

This paper describes the steps we followed to complete the “i-muse™ - Interactive Museum” project, the first product of our startup entrepreneurial project now hosted at the Politecnico di Milano. The i-muse™ system is a combination of an innovative software product, PDA mobile device hardware and related support service aimed to enrich the user experience of people visiting museums and art events. We describe the evolution of the project, from the birth of the idea to the feasibility study, the workgroup organization and management, the software design, the technology evaluation, the software architecture construction, the multimedia contents production, the market analysis and the marketing plan we employed to promote it in the Italian and international market. Particular attention is dedicated to the usability testing phase we performed with the collaboration of the Educational Silk Museum of Como analyzing the results of the test of the PDA guide with different typologies of visitors and their reactions to the accessibility options we implemented in the user interface.

*Panoramic Collections Viewer (PCV)*

Graham Howard, Systems Simulations; and Martin Woolner, University of Plymouth, United Kingdom

Developed to extend the physical exhibition and narrative spaces of an organisation in response to the need for greater public access to artefacts, PCV is an interactive system based on high quality panoramic, 2D and 3D imaging for viewing archives via an organisation's collection management system. The software provides a simple interface for intuitive and fluid use, building on existing digitisation and exhibition spaces to create high quality environments in which to view artefacts. The use of high resolution photography in creating the environments sets the PCV software apart from existing 3D modeled environments, providing museum and heritage organisations with a long lasting solution to exhibiting their collections in virtual reality. By connecting the recording and management of assets to their curation and display, the result of the PCV project is a tool for re-examining and re-evaluating new approaches to curation, collections and exhibition space in a visually compelling visual arena.



*The eMuseum Network: Searching Shared Collections*

Jean-Philippe Rebuffet, Gallery Systems, USA

The eMuseum Network is a Java Networking Platform designed to access multiple collections, from a single Web site hosted by Gallery Systems, with advanced search features and collaboration tools. This latest project is designed to allow all member museums to share their collection catalogues with each other. Similar to the public access to collections currently provided by many museums on their Web sites, this network provides simultaneous searching and browsing of multiple collections from a single entry point, in a share-and-share-alike fashion.

*Open Context: Collaborative Data Publication to Bridge Field Research and Museum Collections*

Eric Kansa, University of California, Berkeley; and Sarah Witcher Kansa, Alexandria Archive Institute, USA

Open Context (<http://www.opencontext.org>) is an open source system that provides a cost-effective dissemination solution for field research and museum collections. The system offers common services and tools to link field research and museum collections with active discussions and creative reuses, making these collections a much richer and integral part of continued cultural and scholarly production. Open Context provides a Web-based tool for researchers and collections managers to upload, "markup," and publish diverse archaeological and museum collection datasets. Once published, users can browse, search, query, and analyze multiple field project and collection datasets. Citation features and editorial control encourage researchers to consider publication in Open Context as a valid form of scholarly communication. At the same time, Creative Commons licenses give explicit permissions for users to freely and legally use the material so long as they properly attribute the original creator and abide by a few other optional terms. The licenses help ensure the availability of Open Context content for new creative and scholarly works.

*CAT: Assemble your own multimedia tour*

Silvia Filippini Fantoni, La Sorbonne, France/Southbank University, United Kingdom

Antenna Audio's latest web-based software application, the Content Assembly Tool (CAT™), responds to the growing need for museums to reduce the cost of Multimedia Tour productions and take more control over the creative process. The CAT™ allows clients to create and/or update their own Multimedia Tours by assembling pre-existing content assets such as text, audio, images, videos and Flash animations. The software is used primarily to publish on any Windows Mobile handheld device, including smart phones, but in future iterations it will also work on other platforms, such as the Internet or kiosk-based systems within the museum. Based on the results of an on-line survey that was distributed to several museum professionals, the CAT™ was designed specifically for use in this sector and therefore is intuitive and easy to use even by those who have little software experience. It privileges a visual approach that helps users better understand the Multimedia Tour structure (even when it grows exponentially) and it includes a series of wizards that guide the user through every step of the process.

**Briefings: Data for Heritage Professionals**

*Auditorium A*

9:30 am-10:30 am

*International Cultural Heritage Law Bibliography (ICHLB)*

Sally Wise, University of Miami, USA

The Mellon Foundation has given a grant to the University of Miami to support planning for and initial development of an International Cultural Heritage Law Bibliography (ICHLB). ICHLB would be the first, fully-abstracted, online bibliographic data base in cultural heritage law and policy, potentially encompassing the disciplines of art law, museum law, cultural property law and preservation law. ICHLB is a collaborative undertaking among the University of Miami School of Law, the J. Paul Getty



Trust, and the Project for Cultural Heritage Law & Policy. Over the period of the planning grant, the collaborators will examine such issues as ICHLB's subject and document scope, creation of a classification/indexing system, and ICHLB's long-term sustainability. The findings will be presented for review at a meeting of an international advisory board.

### *Dictionary of Australian Artists Online: Transforming Arts Research*

Leonie Hellmers, The University of New South Wales, Australia

Art scholars have long lacked available infrastructure to enhance the quality of their research. The Dictionary of Australian Artists Online, which will go public in 2007, aims to fulfill this need by enabling precise interrogation of a vast body of hitherto disconnected data to discover latent as well as novel patterns, anomalies and intensities in that data. DAAO aligns Australian art research with the American Council of Learned Societies' principles for the development of cyber-infrastructure for the humanities and social sciences. It will significantly transform the way Australian art research is conducted through its capacities to index data, validate, provide interconnectivity, conduct precise searches, and correlate different datasets never before possible in the timeframe. The DAAO also leads the field, fostering online research and researchers through policies and procedures that encourage openness in the production of and accessibility to digital content. The use of open standards and tools is central to the DAAO's sustainability and will ensure that its content is extensible and reusable across and within other digital infrastructure.

## Briefings: Social Technologies

*Auditorium BC*

9:30 am-11:00 am

### *The Impact of Advanced Information Communication Technologies on Heritage Conservation*

Alan Bentley, Ontario Ministry of Culture, Canada

Advanced information and communication technologies (ICTs) have the capability to support innovative and strategic responses to the challenges facing heritage organizations. These technologies, including GIS (Geographical Information Systems), electronic repositories, Web-based portals, and on-line communities of practices, have the capability to support strategic innovation within the heritage sector as organizations seek to respond to shifts in their environments. Increasingly, new technologies are expanding the horizons of heritage sector organizations, making their fieldwork, assessments and research more efficient, and the efforts to protect heritage properties more effective. The paper examines current technology trends, how they are being implemented and the potential impact of these technologies on the heritage sector. Furthermore, it explains how heritage organizations are currently adapting and incorporating these technologies in the pursuit of their missions. In particular, a case study of the Ontario Ministry of Culture demonstrates how ICTs, including web portals, electronic repositories and collaboration technologies, have been used to reconfigure key information flows to support the promotion of heritage conservation, enhance the management of heritage property inventories, and improve the exchange of knowledge by heritage professionals.

### *Heritage 2.0*

Kris Luyten and Gert Nulens, Vrije Universiteit Brussel, Belgium

In 2007 the research project 'Heritage2.0' started in Flanders, Belgium. In this project research groups and heritage organisations in Flanders will do research on a social, interactive, location-based heritage experience via mobile devices within a network of heritage sites. An often-heard critique on the use of ICT in a heritage context focuses on the individualized nature of the experience. The innovative aspect of this project lies specifically in the focus on the importance of social interaction within a cultural experience. The objective is to link that interactive component to a digital environment. The project aims to enrich the visitors' experience, both during their real visit as well as in the pre and post trajectory.

*The eye of the beholder: steve.museum and social tagging of museum collections*

Susan Chun, Cultural Heritage Consulting, USA

steve.museum is a two-year old collaboration between art museums whose research project, funded by the U.S. Institute of Museum and Library Services, seeks to learn whether (and how) social tagging can serve art museums. We are interested in discovering whether and how non-professionals' descriptions of artworks differ from professional cataloguing, as well as how volunteer taggers may experience the activity of looking at and describing museum collections. To support our research, we have built an open source tagging tool, developed methods for analyzing user-contributed descriptions of artworks, and begun to study the nature of the tags contributed by end users. In keeping with the open, collaborative philosophy of the project, we will make both our research results and our raw data available to interested members of the community. Our briefing will provide an update on current and future project activities and discoveries, including a review of our tools, a summary of findings to date, and a discussion of our data set and analytical framework.

## Digital Curation

*Auditorium BC*

11:00 am-12:30 pm

Chair: Jennifer Trant, Archives & Museum Informatics, Canada

*An agency-oriented approach to digital curation theory and practice*

Costis Dallas, Panteion University, Greece

Digital curation emerged as an important new concept in the theory and management of cultural information, not least because of its applicability in a broad range of problems, from cultural heritage collections to e-science and organisational records. Current work in digital curation tends to foreground generic (domain-agnostic) issues, methodologies and technologies related to long-term digital preservation and access of assets as diverse as cultural heritage collections, e-science data and research outcomes, and organisational records. I argue in favour of a particular approach to digital curation, informed by the curatorial traditions of the cultural heritage field, and the history (ever since philology, the birth of the great collections, the "universal museum" and the public archive), practices and literacies they are associated with. This approach, narrower in scope and at the same time more profound in ambition, has important implications for digital curation theory and practice. Following recent advances in material culture studies, museum studies and communication, it suggests re-focusing from the syntactic and formal properties of assets to the pragmatic contexts of collection use by evolving communities of interpretants. On this basis, it re-examines collections-related processes as a function of the agency of motivated, informed actors (creators, researchers, users), broadening the scope of digital curation to issues such as the contested continuum between description and interpretation of cultural heritage materials, and the construction of practical knowledge through virtual exhibition and electronic publication. It also addresses the agency of objects (or records) from an activity theory viewpoint, reclaiming the notion of the evidential value of records as a key concept for digital curation.

*Panel Discussion*

Jennifer Trant and Costis Dallas join with

Wendy Duff, Faculty of Information Studies, University of Toronto,

Sara Diamond, President, Ontario College of Art & Design, Canada

Digital curation means many different things in different contexts. In this panel, two professionals with distinct perspectives will respond to the paper. Sara Diamond will speak from the perspective of a curator of digital art. Wendy Duff will bring her expertise in archival processes and electronic records management to the table.

**Box Lunch**

12:30 pm- 2:00 pm

Lower Concourse

**Visual Documentation Strategies***Auditorium BC*

2:00 pm- 3:30 pm

Chair: Lynne Teather, University of Toronto, Canada

*Archive Visualisation and Exploitation at the C2RMF*

Geneviève Aitken, Christian Lahanier, Ruven Pillay and Denis Pitzalis, C2RMF, France

The C2RMF possesses a vast collection of scientific data on the works of art held within all of the museums of France. This data ranges from historical documents and film plates to high resolution multispectral imagery and 3D models. This collection is managed and made available via a custom content management system. In this paper, we give an overview of the range and complexity of data available and describe how these have been made available for scientific research. We will also describe how we have applied visualization techniques to more fully exploit and analyze the rich imaging content, our transition to interactive Web 2.0 technologies and how we have used freely available on-line resources, such as mapping data, to enhance access to our content.

*Picture this: developing a museum online photo library*

Jim Devine, William Bradley Glisson, and Ray Welland, University of Glasgow, Scotland

This paper will examine the development process utilized in the construction of an on-line photo library which addressed and incorporated an on-line payment solution for the Hunterian Museum and Art Gallery at the University of Glasgow. The aspects of the development process that are discussed include the perspective of the Museum's organizational strategic planning aims, the technical requirements, the challenges encountered within a large organizational system with long-established working practices and how the issues introduced by these practices were eventually overcome.

*What The Modern Museum Should Expect From Its In-House Photographic Studio*

James Stevenson, Victoria &amp; Albert Museum, United Kingdom

Photographic Studios have traditionally made 2D images of objects in their collections for publications, catalogues, PR and support for academic research and conservation. Production of these images has been as a response to specific projects such as exhibitions and has rarely been focused on an attempt to interpret the collections as a whole. Digital imaging and the production of a greater variety of multimedia now enables image makers in museums to play a more central role in the interpretation and universal view of collections. It is my belief that the in-house photographic studio should adopt the greatest variety of imaging techniques now available to them to tell the museum's story with these forms of media. To concentrate solely on the creation of 2D images is shortsighted and creates the risk that image making will become the remit of the IT specialist. The author's view is that image making should remain the responsibility of the photographer, the person who understands the fundamental principles of lighting, but one who must adopt the full range of multimedia techniques to tell the museum's story. The final consequence of adopting, understanding and exploiting new media technologies also allows for the possibility that the modern photographer can reasonably attempt to make images of the whole collection held by the large museum: something that was impossible in an analogue world.

## Organizational Impacts

*Auditorium A*

2:00 pm- 3:30 pm

Chair: Elycia Wallis, Victoria's Cultural Network, Australia

### *Facilitating Innovation: Opportunity in times of change*

Brian Dawson, Canada Science and Technology Museum Corporation, Canada

Cultural heritage institutions have been grappling with the accelerating pace of technology-driven changes in society since the 1990s. Cultural heritage institutions understand well the imperative to adapt and innovate. But what is innovation? Organizations often have a narrow view of innovation, often focusing on new technology or product development. Innovation touches on most aspects of an organization, including its offerings, audiences, processes, and its platforms and venues. This paper will explore the nature of innovation. It will review broader business models of the nature of innovation and how organizations innovate, and will explore how these models may be applied to a cultural institution. The paper will also explore concrete examples of fostering innovation within the Canada Science and Technology Museum Corporation, including the role of integrated strategic planning, process improvement, product development, and grass-roots participation. It will also look at specific mechanisms, such as an "Idea Bank" (in support of idea generation), and the internal use of Web 2.0 technologies such as wikis.

### *Digital ICTs: Driver or vehicle of organisational change?*

Darren Peacock, University of South Australia, Australia

This paper aims to stimulate discussion about the nature of technology-related organisational change and how it is managed within cultural heritage organisations. How we think about and understand change affects our ability to plan, shape and direct it. Drawing on perspectives from sociology, management and organisation theory, as well as information systems, this paper explores how we might understand and better manage change within the cultural heritage sector arising from the use of digital ICTs.

Theoretical models of the interaction between organisations and technology have tended to promote a mechanical concept of technology as an irresistible deterministic force, undermining the idea of organisational and individual agency. More recent approaches emerging from the social constructivist perspective emphasise the role of organisations in shaping the outcomes of technology. Theories based in social constructivism help us to better understand that the outcomes of organisational use of digital technologies are neither fixed nor predictable. People and organisations shape technology; technology shapes organisations and professional practices.

## Ice Cream Break

3:30 pm- 4:00 pm

*Lower Concourse*

## Closing Plenary

*Auditorium BC*

4:00 pm- 5:30 pm

Chair: Jennifer Trant, Archives & Museum Informatics, Canada

### *Eternal Gandhi*

Ranjit Makkuni, Sacred World Foundation, India

The Eternal Gandhi Multimedia Museum is one of the world's first digital multimedia museums. Located at the site where Mahatma Gandhi attained martyrdom, it not only preserves the historical events of Gandhiji's life but also presents a spectrum of information technology visions inspired by Gandhian thought. The project revives the values by which India obtained freedom; it also redefines those values in order to animate modern products and design.

The project presents a language of physical interface actions derived from classical symbols of the spinning wheel, turning of the prayer wheels, touching symbolic pillars, the act of hands touching sacred objects, collaboratively constructed quilts, sacred chanting in the collective group, the satsanga and the touching and rotating of prayer beads. These tradition-based interactions inspire a rich panorama of tactile interfaces that allow people to access the multimedia imagery and multidimensional mind of Gandhiji.

The technology developed does not 'merely scan' Gandhian images. It extrapolates Gandhian ideals to newer domains of information technology and product design, and at higher levels, the creation of meaning in a globalised world. For example, the Gandhian commitment to hand-based production and its symbiotic relationship with nature is interpreted in the context of modern culture-conscious design.

The contributions of the spectrum of artists, spanning wide geographic boundaries and disciplines, illustrate the universal resonance in Gandhian messages. Computer scientists, modern designers, mosaic makers, craftsmen, artists, and wood carvers offer their work as a dedicated prayer, in remembrance of the Gandhian vision; a collective Likita Japa, the endless remembrance of the Divine through repetition of the written mantra. Each object in the museum, whether a pixel of light, a bit-map on the screen, an animation, a circuit or a handcrafted object, is a living prayer. Here lies the reaffirmation of the Gandhian view, a commitment to the dignity of hands, the healing of divides, the leveraging of village creativity and cultural diversity in the face of homogenisation.

# Our Thanks To ...

## ICHIM07 Program Committee

The program for ICHIM07 was selected by a committee of international experts in cultural informatics. Our thanks to:

- Co-Chairs: David Bearman and Jennifer Trant, Archives & Museum Informatics
- Maxwell L. Anderson, The Melvin & Bren Simon Director and CEO, Indianapolis Museum of Art, USA
- David Arnold, Dean of Faculty, University of Brighton, UK
- Liam Bannon, Professor, University of Limerick, Ireland
- Jean François Chougnat, Director, Berardo Museum of Contemporary Art, Portugal
- Costis Dallas, Research Fellow, Digital Curation Unit, Athena Research Centre and Lecturer in Cultural Heritage Informatics, Panteion University, Greece
- David Dawson, Senior Policy Adviser (Digital Futures), MLA, UK
- Sara Diamond, President, Ontario College of Art and Design, Canada
- Wendy Duff, Associate Professor, University of Toronto, Canada
- Franca Garzotto, Associate Professor, Politecnico di Milano, Italy
- Kati Geber, Business Improvement and Strategic Advice, Services Canada, Canada
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- Harald Kraemer, Director of Artcampus, University of Berne, Switzerland
- Otmar Moritsch, Curator, Technisches Museum Wien, Austria
- Peter Sigmund, Director of Collections, Rijksmuseum, The Netherlands
- Jane Sledge, Associate Director for Museum Assets and Operations, National Museum of the American Indian, USA
- Kevin Sumption, Associate Director, Powerhouse Museum, Australia
- Jutta Treviranus, Director ATRC, University of Toronto, Canada
- Nicole Vallières, Director, Knowledge and Collections Management, McCord Museum, Canada
- Christabel Wright, Manager, New Media, Department of Communications, IT and Arts, Australia

## Local Arrangements Committee

Many individuals have helped make the local events work. Special thanks go to:

- Wendy Duff, Faculty of Information Studies, University of Toronto
- Jessica Koepfler, Museum Studies, University of Toronto
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## Collaborators

We rely on the support of other organizations to bring ICHIM07 to Toronto and to make it a memorable meeting. Our thanks to:

- The Faculty of Information Studies, University of Toronto



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- The MaRS Collaboration Centre



- Local Museums, hosts of the Pre-Conference Tours.

# ICHIM07 Proceedings



## About the CD-ROM

*The Proceedings of ICHIM07 include fully illustrated texts of all papers presented, biographies of the presenters and links to many sites discussed. They are published on the Web at <http://www.archimuse.com/ichim07/> and are also included here for your reference.*

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