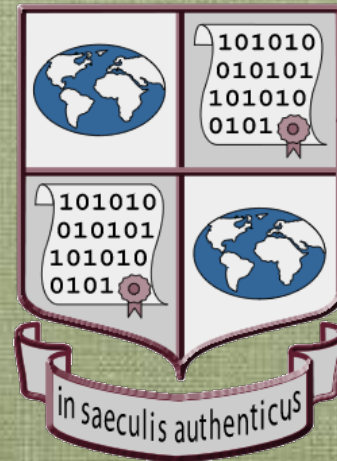
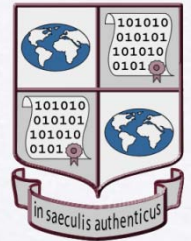


Preserving Authentic Electronic Art Over the Long-term: The InterPARES Project



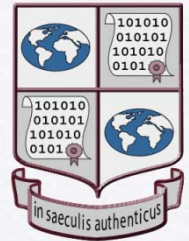
Dr. Luciana Duranti
InterPARES Project Director

Advantages of the Digital Medium



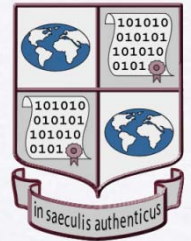
- **Digital materials do not fade or become yellow and brittle**
- **It is easy to alter them without leaving a trace for editing or repurposing**
- **They occupy very little storage space**
- **They can be copied an infinite number of times**
- **They can be shared over the internet**
- **They can be sent and received across the world within seconds**

Disadvantages of the Digital Medium



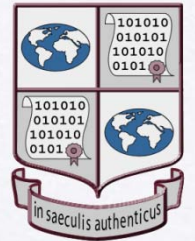
- **A computer is needed to read digital materials: The medium does not contain any given work but only bit-strings**
- **It is not possible to preserve digital materials but only the ability to reproduce them**
- **There is no longer an original**
- **Authenticity is no longer verifiable on the work itself**
- **The easiness of reproduction makes it difficult to identify the final version**
- **With interactive and dynamic systems, often we have only views of works, rather than identifiable concrete entities with defined boundaries**

...and more



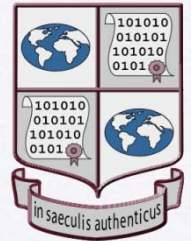
- **The internet makes intellectual property increasingly difficult to protect**
- **Viruses and technology failures make it easy to lose everything**
- **Technological obsolescence makes digital materials inaccessible very fast**
- **Works that comprise text, images, graphics, etc. are broken down and stored in different parts of the memory**
- **The information provided by the materiality of the object no longer exists**

...and bad habits make it worse



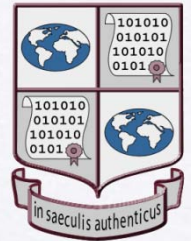
- Hybrid systems
- Creating materials in different applications and leaving them there
- Not doing regular back-up and upgrading of files
- Not keeping media in the right climatic **environments**
- Not refreshing the media

and worse...



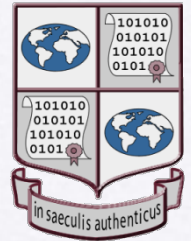
- Using proprietary or legacy systems
- Not migrating the materials to new technology
- Hoping that emulation will take care of long-term access
- Not protecting the documents from malicious or accidental tampering—trusting personal or institutional custody
- Using protection systems—encryption or digital signatures—that do not allow for preservation

InterPARES Goal



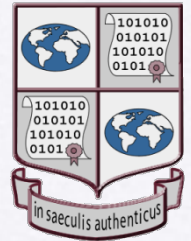
To develop the theoretical and methodological knowledge essential to the permanent preservation of authentic records generated and/or maintained electronically, and, on the basis of this knowledge, to formulate model policies, strategies and standards capable of ensuring that preservation.

InterPARES 2 Goal



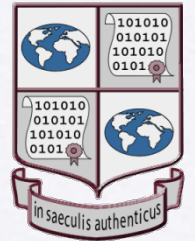
To ensure that the portion of society's recorded memory digitally produced in dynamic, experiential and interactive systems in the course of **artistic**, scientific and e-government activities can be created in accurate and reliable form and maintained and preserved in authentic form, both in the long and the short term, for the use of those who created it and of society at large, regardless of digital technology obsolescence and media fragility.

InterPARES (1999-2006)



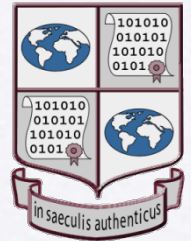
- Major funding from SSHRC, NHPRC, NSF, UBC
- 20 countries in 5 continents, 100 researchers
- Public and private sectors
- Academics and professionals
- Archival science, diplomatics; music theory, composition, performance; film theory, production, description; dance and theatre theory; hard and social sciences methodologies; jurisprudence; computer science and engineering

InterPARES Products



A body of concepts and principles and a series of analytical instruments for studying new types of digital documents and developing new requirements and method as needed

Concepts of Reliability and Authenticity

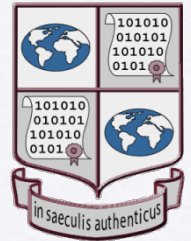


Reliability refers to the trustworthiness and accuracy of content

Authenticity refers to the trustworthiness of an entity as such. An authentic work is one that has not been tampered with or otherwise corrupted

Authenticity comprises identity and integrity. Identity refers to the attributes of a work that uniquely characterize it and distinguish it from other works. Integrity refers to the wholeness and soundness of a work. A work has integrity if it is intact and uncorrupted

Concepts of Dynamic, Experiential and Interactive Digital Entities

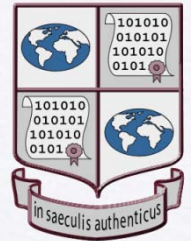


A dynamic entity depends for its content upon data extracted from databases which may have variable instantiations. The main challenge for its long-term reliability and authenticity is the lack of a fixed form and resides in the ability to preserve track of change

An experiential entity is an object whose essence goes beyond the bits constituting it to incorporate the behaviour of the rendering system. Its reliability and authenticity depends on the ability to preserve the environment in which the system was experienced

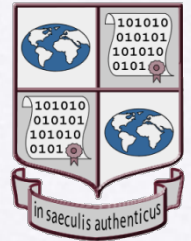
An interactive entity is one in which each user intervention causes a response and/or a change in its substance. Its reliability and authenticity depends on the tracking and preservation of the changes, and perhaps of the functionality of the creating system

Other InterPARES Products



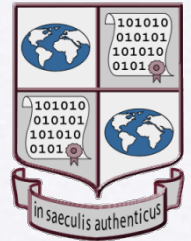
- Authenticity Requirements for those who generate and keep entities and for those who preserve them (e.g. metadata for identity and integrity, access privileges, etc.)
- Selection and preservation methods and procedures (e.g. models representing procedures and responsibilities)
- A framework for the development of policies, strategies and standards related to the proper creation, maintenance and preservation of digital entities that are reliable and accurate, and that can be proven authentic over time

Research In Progress Relevant to You



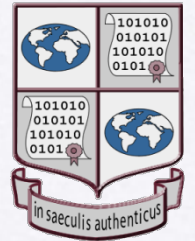
- An understanding of the concepts of accuracy, reliability and authenticity in the visual and performing arts and their implementation
- A guide to encoding formats that can be preserved
- Guidelines for individuals who are not part of government or large organizations to help them to create works than can be preserved
- Registers of metadata schemata for different types of work
- Methods for selecting works for permanent preservation on the basis of their legal, administrative, social or cultural value

Research In Progress Relevant to You



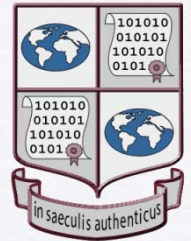
- Methods and strategies for keeping dynamic, experiential and interactive works destined to permanent preservation in authentic form over the long term
- Processes for analyzing and criteria for evaluating advanced technologies for the implementation of the above methods in ways that respect cultural diversity and pluralism
- A framework for policies and strategies dealing with intellectual property and copyright issues in the dynamic, experiential and interactive digital environment

Primary Methods Used



- Analysis of literature
- Case Studies (including investigation and analysis of the results through diplomatic examination and modeling techniques)
- Surveys

Examples of Case Studies



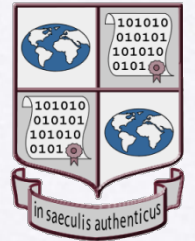
The work of Stelarc, a performance artist who frequently collaborates with computer programmers, technicians and scientists. His art is exhibited or performed in diverse environments including galleries, aerial suspensions and the Internet. The case study team is interested in learning where record creation begins and ends with Stelarc's art. In addition, the fragility of the environments in which the works are created and performed raises questions relating to issues of reliability and authenticity.

Examples of Case Studies (cont.)



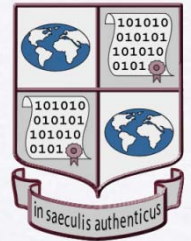
Obsessed Again..., a work for bassoon and interactive electronics written in 1992 by Canadian composer Keith Hamel. The work was designed to use commercial hardware and software but the required equipment is quickly becoming obsolete. The commissioner of the work has expressed a wish to reconstitute the work. The case study objectives include identifying both digital and non-digital documents associated with the work, articulating the requirements for musical authenticity based upon the documents, building a performable, authentic realization of the work, and developing a method for the future storage, retrieval, migration and access of the work.

Examples of Case Studies (cont.)



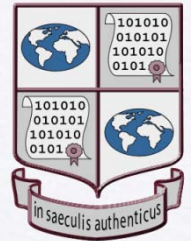
Waking Dream, a performance piece for two people using multiple theatrical elements. The case study team seeks to identify the digital and non-digital components such as software, hardware designs, audio, articulate the requirements for performance authenticity for the piece, build a performable, authentic realization of the piece, and develop a method for the future storage, retrieval, migration and access of the work.

Examples of Surveys



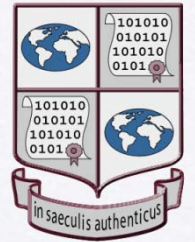
The MUSTICA Initiative. The study team seeks to develop a typology of interactive digital music compositions, that will support discussion and analysis of the preservation needs of interactive, digital compositions by identifying the intellectual and physical components of the records of a variety of digital, interactive musical works created by composers at the Institute de Recherche et Coordination Acoustique/Musique (IRCAM) and Groupe de Recherches Musicales (GRM) of Institut National de l'Audiovisuel (INA). This research is partially funded by France's Centre National de la Recherche Scientifique (CNRS).

Examples of Surveys (cont.)



A survey of the record-keeping practices of digital photographers, in order to gather data relating to the types of entities that they produce, their assumptions regarding the future access of their photos, and the nature and variety of digital systems they use. This will also shed light on how photographers use the entities they create, what their expectations are in terms of their future accessibility and how they ensure accessibility of their photos over the long-term.

InterPARES Web Site



www.interpares.org