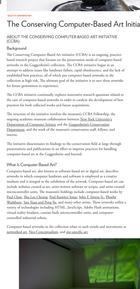


ISSUE 1 | SPRING 2011

The Conserving Computer-Based Art Initiative

ABOUT THE CONSERVING COMPUTER-BASED ART INITIATIVE (CCBA)

Background

The Conserving Computer-Based Art initiative (CCBA) is an ongoing, practice-based research project that focuses on the preservation needs of computer-based artworks in museum collections. The CCBA is a response to the need to develop strategies to address issues like hardware failure, rapid obsolescence, and the lack of established best practices, all of which put computer-based artworks in the collection at high risk. The ultimate goal of the initiative is to save these artworks for future generations to experience.

The CCBA initiative continually explores innovative research questions related to the care of computer-based artworks in order to catalyze the development of best practices for the field of time-based media conservation.

The resources of the initiative involve the resources of CCBA Technology, the ongoing academic research collaboration between New York University's Department of Computer Science and the Guggenheim Conservation Department, and the work of the museum's conservation staff, fellows, and interns.

The initiative disseminates its findings in the conservation field at large through presentations and publications. The CCBA initiative's process for handling computer-based art at the Guggenheim and beyond.

What's Computer-Based Art?

Computer-based art, also known as software-based art or digital art, describes artworks that rely on computer technology as a significant component of medium and is integral to the exhibition of the artwork. Computer-based art can include stations created as art, artist written software or scripts, and artist created hardware. Artists who have created computer-based artworks include Jeffrey Shaw, Paul Chan, Hsu Lan-Chuang, Paul Sermon, Jenny Arlen & Dennis Del Valle, Wolfgang Staehle, Yan Nam and Nam Jun Paik, and many others. These artworks utilize a variety of technologies including HTML, JavaScript, Adobe Flash animations, virtual reality headsets, custom built microcontroller units, and computer-controlled industrial robots.

Computer-based artworks in the collection relate to such trends and movements as networked art, Net Conceptualism, and net.art, and so on.

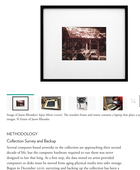
Paul Chan's work 2D Light (2007) uses a computer to play a Flash animation that is projected onto a wall. © Paul Chan. Photo: Jean Vong, courtesy Paul Chan and Green Naftali, New York.

How Do Museums Conserve Computer-Based Artworks?

The long-term preservation of computer-based artworks remains challenging, because technology changes so rapidly that it is difficult to keep up with the hardware components that may be required to run the artwork and to access data stored on discontinuated or even rare. Unlike paintings and sculptures, these works cannot simply be placed on a shelf; they can quickly break or the software stores turning until it is too late. Conservators staff must manage the challenge of what Dietrie Lyonsmith calls the "contradiction between the ephemeral nature and possibility of digital artworks," while minimizing their artistic integrity and documenting their variation treatment over time.

Conservation staff can implement several strategies to preserve these artworks for the long term. As with other artworks, the conservation of computer-based works involves documentation and documentation of the "original" appearance, the artwork's technical composition including its constituent parts and artist intended behaviors and functionality.

While creating documentation, conservation analysis the work to identify its vulnerabilities, for example, its dependence on a specific operating system, a specific piece of software, or customized hardware. Conservators must understand the technical dependencies of the artwork and must also identify and secure the artwork's "essence," the artist's intent behind the work, which may include its graphics, soundscape, music, conceptual, programs, or simply secure the look of an artwork's files. These physical and digital components often vary depending on the technology employed in the artwork.



Samuel G. Fryer Fellow Alexandra Nickerl and NYU computer science student Jillian Zhang document the installation of Jenny Arlen & Dennis Del Valle's artwork (2007) and the programmed behaviors of the work's robotic arm. © Nan Nam. Photo: Nan Nam and Jenny Arlen.

CCBA Research Team

Lena Stimson, Deputy Director and Chief Conservator
Jonathan Ashtiani, Fellow in the Conservation of Computer-Based Art
Deena Engel, Clinical Professor in the Department of Computer Science at the Courant Institute of Mathematical Sciences, New York University

CCBA Fellowship

In 2008 the Guggenheim initiated funds to create a postgraduate fellowship dedicated to studying the care of computer-based artworks. The Samuel G. Fryer Fellowship in Conservation was sponsored at the Guggenheim CCBA fellow in December 2008 and began surveying and beginning to categorize computer-based works in the collection; creating disk images of artist-provided hardware and software and identifying high-risk pieces requiring immediate treatment.

Fellowship supported the international tour of artwork Brandon's Lovely and Wonderful Life (1998–2000), which was the first time the Guggenheim exhibited a computer-based artwork. The Guggenheim continues to collect these works, and Fellowship has actively participated in new acquisitions.

Image of Jason Mecklenburg's Brandon's Lovely and Wonderful Life (1998–2000). Photo: Jennifer Hudson, and Fellowship's image of Jason Mecklenburg's artwork (

the professional community of museum staff, art historians, and collectors, and to the general public in order to advance the stewardship of computer-based artworks.

Participants in the CCBA initiative have contributed to the following publications:

SEE ALL PUBLICATIONS ›

Participants in the CCBA initiative have regularly presented at conferences and symposia.

Recordings and presentation slides of selected talks can be accessed online:

SEE ALL PRESENTATIONS ›

TechFocus III: Caring for Software-Based Art

TechFocus III, a two-day symposium held at the Solomon R. Guggenheim Museum in September 2015, focused on the preservation of software-based artworks in museum collections. The symposium featured presentations and panels with art conservators, curators, computer science students and faculty, and artists as well as hands-on workshops.

Participants in the CCBA initiative copresented a case study on a Guggenheim collection work, Seibren Versteeg's *Untitled Film II* (2006).

The full program and video recordings of all presentations and panels are available on the *TechFocus III* website.

The symposium was made possible through the generous support of the Foundation of the American Institute for the Conservation of Historic and Artistic Works (FAIC), the National Endowment of the Arts, and the Solomon R. Guggenheim Museum.

HISTORY OF THE CONSERVING COMPUTER-BASED ART INITIATIVE

The CCBA initiative began in 2013 when Joanna Phillips, former Senior Conservator of Time-Based Media at the Guggenheim, began collaborating with Deena Engel, Clinical Professor of Computer Science at New York University. Under their mentorship, Engel's students began case-study research on artworks in the Guggenheim's collection—analyzing artists' source code, testing treatment strategies, and participating in artist interviews.

In 2014–16 former Guggenheim interns and fellows made significant contributions to CCBA, including Brian Castriota and Alexandra Nichols (Samuel H. Kress Fellows), Amy Brost (Andrew W. Mellon Graduate Intern), Lia Kramer (Polonsky NYU Digital Humanities Intern), and Jiwon Shin (Intern).

Phillips recognized the need to devote more time and resources to examining computer-based artworks through a CCBA-specific fellowship. Jonathan Farbowitz became the Guggenheim's CCBA Fellow in 2016 and began a survey and backup of collection works. Under the supervision of Engel and Phillips and supported by Farbowitz, two web artworks, Shu Lea Cheang's *Brandon* (1998–99) and John F. Simon Jr.'s *Unfolding Object* (2002), were restored in 2017 and 2018, respectively. Emma Dickson served as the lead programmer on the restoration of *Brandon* and Karl Toby Rosenberg on *Unfolding Object*.

CCBA research has been presented at international conferences and symposia including the American Institute of Conservation annual meeting, the Preservation and Archiving Special Interest Group conference, and the *TechFocus III* symposium.

The CCBA research team continues to explore new artworks as well as new methods of treatment and documentation and continues to disseminate its findings through publications and presentations.

The CCBA Initiative has been generously supported by the Carl & Marilynn Thoma Art Foundation; Josh Elkes; Suzanne Deal Booth; the New York State Council on the Arts, with the support of Governor Andrew Cuomo and the New York State Legislature; and Christie's.

Blogs

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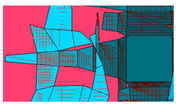

The Guggenheim Restores John F. Simon Jr.'s Early Web Artwork "Unfolding Object"

By Joanna Phillips, Deena Engel, Jonathan Farbowitz, Karl Toby Rosenberg

An interactive web artwork created in the early days of the internet gets a much-needed restoration.

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Restoring Brandon, Shu Lea Cheang's Early Web Artwork

By Joanna Phillips, Deena Engel, Emma Dickson, Jonathan Farbowitz

The collaborative team that recently restored Shu Lea Cheang's early Internet artwork *Brandon*—one of the first such works to enter the Guggenheim's permanent collection—shares details about the intricate conservation process.

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How the Guggenheim and NYU Are Conserving Computer-Based Art—Part 2

By Caitlin Dover

Guggenheim conservator Joanna Phillips and New York University's Deena Engel continue their discussion of the preservation of computer-based art.

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